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THE PLANT DISEASE REPORTER

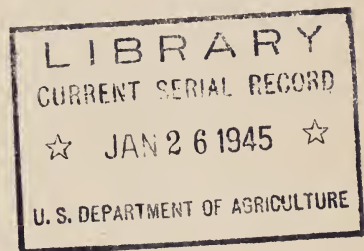
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THE PLANT DISEASE SURVEY, DIVISION OF MYCOLOGY AND DISEASE SURVEY  
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SUPPLEMENT 142

ANNOTATED CHECK LIST AND HOST INDEX OF THE  
RUSTS OF GUATEMALA

May 1, 1943



The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.



ANNOTATED CHECK LIST AND HOST INDEX OF THE  
RUSTS OF GUATEMALA <sup>1</sup>

George B. Cummins

Plant Disease Reporter  
Supplement 142

May 1, 1943

The first extensive collections of Guatemalan rusts were made by Kellerman from 1905-1908. Most of these records were published by Kern (31, 32). Holway then made three trips to Guatemala between 1914 and 1917. His specimens were studied by Arthur (1, 2, 3). Only occasional collections were made in Guatemala from 1917 until 1937 when Dr. J. R. Johnston began sending specimens of rusts and continued to do so until 1941 when he returned to the United States. In 1939-40 and 1940-41 Paul C. Standley collected many rusts during two Field Museum expeditions to Guatemala. Only selected items of the collections of Johnston and Standley have been published. Since their collections contained numerous rusts and hosts not recorded previously for Guatemala the publication of a complete record of the Guatemalan rusts and their hosts seemed desirable.

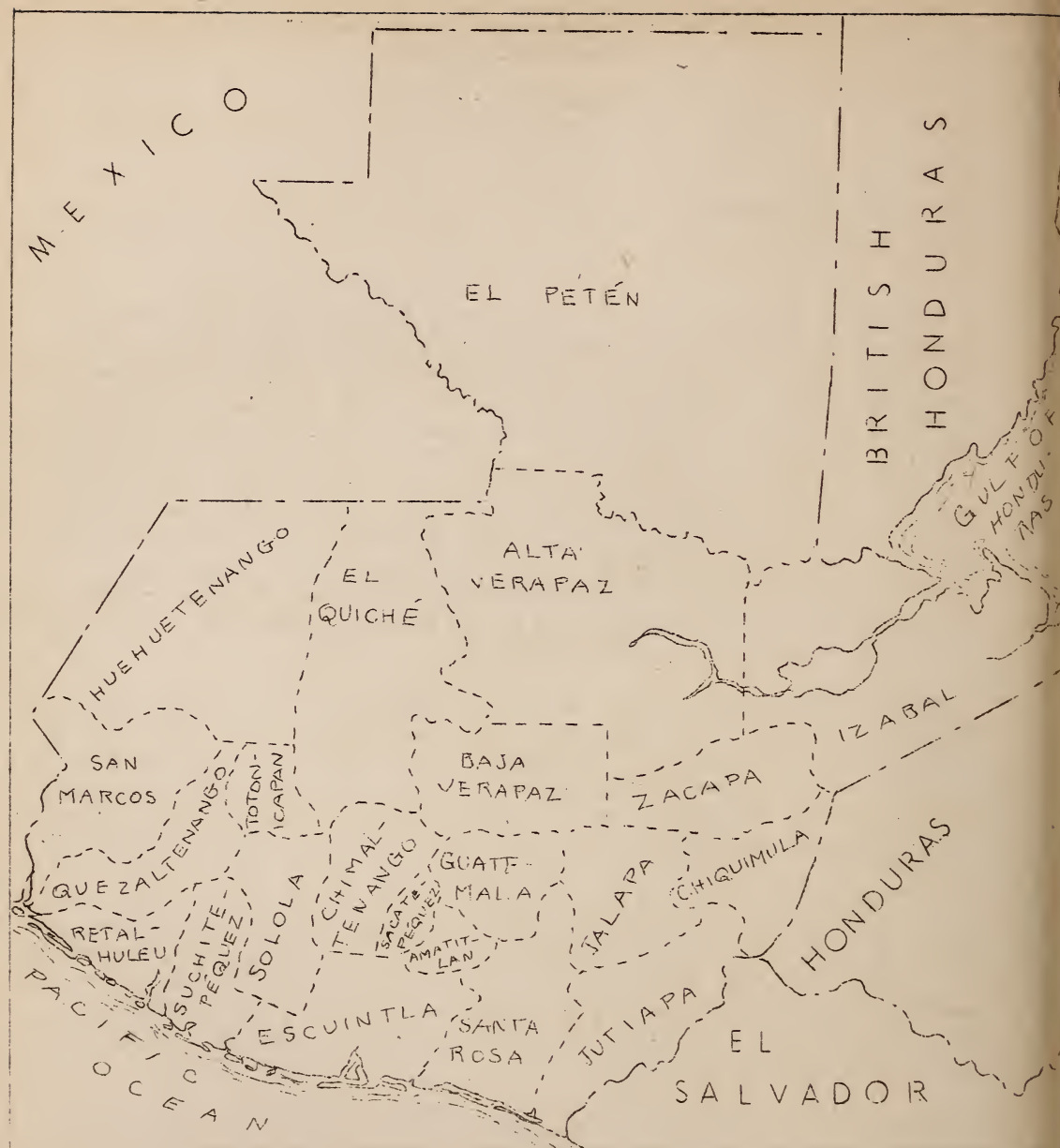
In the introduction to his report of Holway's Guatemalan collections Arthur (1) pointed out that not a dozen collections were known aside from those of Kellerman and Holway. In the present account 1858 collections of rusts are cited, comprising 369 species. There are 611 hosts. Of the 1858 specimens of rusts Standley collected 742, Holway 600, Kellerman 243, Johnston 224 and all other collectors only 49.

Both rusts and hosts are alphabetized in a single list. The collections are cited by Departments rather than by localities, the collectors and their numbers are listed but dates of collection are omitted. In case of the "Big Four" only the initial precedes the number. Thus, numbers preceded by H, J, K, or S were collected, respectively, by Holway, Johnston, Kellerman or Standley. Other collectors' names are given in full.

Citations to descriptions are given only for recently described species or for species which have been redescribed or revised. Descriptions of all other species can be found in Volume 7 of the North American Flora.

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<sup>1</sup> Journal Paper Number 79, of the Purdue University Agricultural Experiment Station. Contribution from the Department of Botany.



Map of Guatemala



- ABUTILON DISCISSUM (Bertol.) Schl. see NEOBRITTONIA.
- ABUTILON GIGANTEUM (Jacq.) Sweet, HIRTUM (Lam.) Sweet: Puccinia heterospora.
- ACACIA ANGULOSA Bertol.: Ravenelia igualica.
- ACACIA ANGUSTISSIMA (Mill.) Kuntze: Ravenelia leucanae-microphyllae.
- ACACIA BURSARIA Schrenck: Ravenelia inquirenda.
- ACACIA FILICOIDES (Cav.) Trell.: Ravenelia igualica.
- ACACIA PENNATULA (C. & S.) Benth.: Ravenelia acaciae-pennatulae.
- ACALYPHA GUATEMALENSIS Pax & Hoffm.: Uredo antiquensis.
- ACHYRANTHES see ALTERNANTHERA.
- ACNISTUS ARBORESCENS (L.) Schl.: Puccinia acnisti.
- ADEOPETALUM see EUPHORBIA.
- ADTANTUM ANDICCLA Liebm.: Uredinopsis investita.
- AECIDIUM ALBICANS Arth. & Holw., on Phyllanthus cecami (P. acuminatus), Escuintla: H 504; Relathuleu: H 709. Known also from El Salvador, Costa Rica, and Venezuela.
- AECIDIUM AMPLIATUM Jacks. & Holw., on Eupatorium sp., Chimaltenango: J 737, 867. Known also from Bolivia and Costa Rica.
- AECIDIUM ARCHIPACCHARIDIS Cum., on Archibaccharis serratifolia, Sacatepéquez: J 79 (type). Known only from the type. For a description see Cummins (18).
- AECIDIUM BYRSONIMATIS P. Henn., on Byrsonima crassifolia, Zacapa: K 4325 (type of Aecidium byrsonimae Kern & Kellerm.); B. sp., Izabal (?): Cook. This species differs from the aecia (Aecidium vinnulum Jacks. & Holw.) of Crossopora notata in having aecio-spores with a much thickened apical wall.
- AECIDIUM DAHLIAE-MAXONI Cum., on Dahlia maxoni, Chimaltenango: J 1875 (type). For a description see Cummins (20). Known only from the above collection.
- AECIDIUM FUCHSIAE Jacks. & Holw. ? on Fuchsia minutiflora, Chimaltenango: J 1912. This specimen is not typical, having paler peridia and spores with slightly thinner walls, but is best referred to the above species. For a description see Jackson (30). Known otherwise only from South America.
- AECIDIUM GUATEMALENSE Kern & Kellerm. on Heliotropium indicum L., Zacapa: K 4326 (type). Known only from Guatemala.
- AECIDIUM LANTANAE Mayor, on Lantana involucrata, Chimaltenango: J 686, 736, 769, 861. This species is sometimes included as a synonym of Aecidium verbenae Speg. but with present knowledge that A. verbenae is the aecial stage of Puccinia elongata Speg. (see Thurston, 48) it is best kept separate.
- AECIDIUM LOPANTHI Thüm., on Psittacanthus calyculatus, locality unknown: Trelease. The specimen is fragmentary and the identity of the rust not too certain.
- AECIDIUM LYCIANTHIS Cum., on Lycianthes quichensis, Chimaltenango: J 1708, 1877 (type); Quezaltenango: S 8336. For a description see Cummins (20).
- AECIDIUM SERIATUM Arth., on Euphorbia lancifolia, Alta Verapaz: Pittier 237 (type), S-70520; on E. sp., Izabal: Smyth 64. Reported only from Guatemala.

- AECIDIUM TALINI Speg., on Talinum triangulare (Jacq.) Willd.,  
Santa Rosa: S 79497. Known otherwise only from South America.  
The specimen was compared with Spegazzini's collections by  
Lindquist. For a description see Sydow (45).
- AECIDIUM TOURNEFORTIAE P. Henn., on Tournefortia hirsutissima,  
El Petén: Lundell 1669; on T. petiolaris DC., Chimaltenango:  
J 1376.
- AEGOPCGON CENCHROIDES H. & B., TENELLUS (Cav.) Trin.: Puccinia  
aegopogonis.
- AESCHYNOMENE sp.: Phakopsora aeschynomenes.
- AGERATUM CONYZCIDES L., CORMYBCSUM Zucc. var. LATIFOLIUM (DC.) Rob.,  
RUGCSUM Coult., TOMENTOSUM (Benth.) Hemsl.: Puccinia conoclinii.
- AGRIMONIA MACROCARPA (Focke) Rydb.: Pucciniastrum agrimoniae.
- AKLENIA see EUPHORBIA.
- ALLODUS see PUCCINIA.
- ALNUS ACUMINATA H.B.K., ARGUTA (Schl.) Spach, JORULLENSIS H.B.K.:  
Melampsoridium hiratsukanum.
- ALTERNANTHERA OBOVATA (M. & G.) Standl., PHILOXEROIDES Griseb.:  
Puccinia obesispora.
- ALVECLARIA CORDIAE Lagerh., on Cordia ferruginea, Alta Verapaz:  
J 1909, S 71352, 91566, 92161; Quezaltenango: S 87980; on  
C. riparia, Quezaltenango: H 821; on C. sp., Izabal: K 5336.  
Reported from Central and South America and the West Indies.
- AMELANCHIER NERVOSA (Dcne.) Standl.: Gymnosporangium guatemalianum.
- AMYGDALUS see PRUNUS.
- ANACARDIUM OCCIDENTALE L.: Uredo anacardii.
- ANDROPOGON CONDENSATUS H.B.K., Puccinia andropogonis.
- ANDROPOGON HIRTIFLORUS (Nees) Kunth: Uromyces clignyi.
- ANDROPOGON SACCHAROIDES Sw.: Puccinia infuscans.
- ANGIOPSCRA COMPRESSA Mains, on Axonopus compressus, Izabal: K 7540;  
Retalhuleu: S 88773; on Paspalum conjugatum, Izabal: H 594;  
on P. fasciculatum, Sacatepéquez: S 63343; on P. humboldtianum,  
Baja Verapaz: K 8034; Chimaltenango: S 80034, 80059; Guatemala:  
H 64; Huehuetenango: S 82891; Solola: H 129a; on P. squamu-  
latum, Chimaltenango: S 79958. This rust has usually been con-  
fused with Puccinia substriata (P. tubulosa), which occurs on  
the same hosts, but is quite different in all characters. It is  
common in tropical regions of the Americas. Synonymy, hosts and  
distribution were published recently by Cummins (18). For illus-  
trations see Arthur (4) who published the species as Puccinia  
compressa Arth. & Holw., a nonvalid name, and Mains (35).
- ANGIOPSCRA LENTICULARIS Mains, on Lasiacis divaricata, Guatemala:  
K 5376; on L. ruscifolia, Santa Rosa: S 77899; on Panicum  
arundinariae, Chimaltenango: S 81037. Both uredia and telia  
are present on the Panicum and differ in no way from those on  
Lasiacis. For a description and illustrations see Mains (35).
- ANGIOPSCRA PALLESCENS (Arth.) Mains, on Euchlaena mexicana, Guatemala:  
S 92861; on Tripsacum latifolium, Santa Rosa: K 7802; on T. laxum,  
unknown locality, Grant 39. For synonymy and illustrations see  
Mains (35).



- ANGIOPSCRA ZEAE Mains, on Zea mays L., Chimaltenango: J (type). For a description see Mains (37); for illustrations see Mains (37) and Cummins (17).
- ANNOMA CHERIMOLIA Mill.: Phakopsora cherimoliae.
- ANODA CRISTATA (L.) Schl.: Puccinia anodae, P. heterospora.
- ANODA HASTATA Cav.: Puccinia anodae.
- ANTHEPHCRA HERMAPHRODITA (L.) Kuntze: Puccinia chaseana.
- ANTIRRHINUM MAJUS L.: Puccinia antirrhini.
- ARBUTUS XALAPENSIS H.B.K.: Pucciniastrum sparsum.
- ARCHIBACCHARIS ASPERIFOLIA (Benth.) Blake: Puccinia oaxacana.
- ARCHIBACCHARIS SERRATIFOLIA (H.B.K.) Blake: Aecidium archibaccharidis.
- ARCHIBACCHARIS TORQUIS Blake: Puccinia oaxacana.
- ARDISIA PASCHALIS D. Sm.: Uromyces myrsines.
- AREFARIA ALSINOIDES Willd., LANUGINOSA Rohrb.: Puccinia modica.
- ARRACACIA BRACTEATA C. & R.: Puccinia arracachae, P. repentina.
- ARRACACIA RIGIDA C. & R.: Puccinia arracachae.
- ARTHROSTYLIIDIUM RACEMIFLORUM Steud.: Uredo ignava.
- ASCLEPIAS CURASSAVICA L., GUATEMALENSIS D. Sm.: Uromyces asclepiadis.
- ASTER BULLATUS Klatt: Puccinia asteris.
- ASTRAGALUS GUATEMALENSIS Hemsl.: Uromyces punctatus.
- AVENA SATIVA L.: Puccinia coronata.
- AXOPUS COMPRESSUS (Sw.) Beauv.: Angiopsora compressa.
- BACCHARIS GLUTINOSA Pers.: Puccinia baccharidis.
- BACCHARIS HETEROPHYLLA H.B.K.: Puccinia interjecta.
- BACCHARIS KELLERMANII Greenm.: Puccinia baccharidis-multiflorae.
- BACCHARIS LANCEIFOLIA Less.: Puccinia interjecta.
- BACCHARIS RHEXICIDES H.B.K.: Puccinia exornata.
- BACCHARIS SERRAEFOLIA Benth.: Puccinia baccharidis-multiflorae.
- BACCHARIS THESICIDES H.B.K.: Puccinia exornata.
- BACCHARIS TRINERVIS (Lam.) Pers.: Puccinia alia, P. exornata.
- BACCHARIS VACCINIODES H.B.K.: Puccinia interjecta.
- BAEODROMUS EUPATORII Arth., on Eupatorium aschenbornianum, Alta Verapaz: J 1908, S 69250, 89793, 90394; Chimaltenango: J 370, 685, S 57773, 64311, 79814; Guatemala: H 478, 484; Quezaltenango: H 100, 792, S 83559, 85133, 85775, 85811; Sacatepéquez: J 831; on E. donnell-smithii, Alta Verapaz: von Turckheim 927; on E. mairetianum, Quezaltenango: S 83809, on E. pycnocephalum, Chimaltenango: S 79942; Quezaltenango: S 84277, on E. sp., Chimaltenango: J 869; Guatemala: H 16, K 5344; Jalapa: K 7960; Quezaltenango: S 84347; Sacatepéquez: K 7237; San Marcos: S 85297; Solola: K 5430. Described and known otherwise with certainty only from Mexico. This species should not be confused with Puccinosira eupatorii.
- BAEODROMUS HCLWAYI Arth., on Senecio warszewiczii, Quezaltenango: S 84176. This is an uncommon species, known otherwise from two collections made in Mexico.
- BALTIMORA RECTA L.: Uromyces cucullatus.
- BAMBUSA VULGARIS Schrad.: Uredo ignava.

- BAUHINIA INERMIS Pers., PAULETIA Pers., UNGULATA L.: Uromyces guatemalensis.
- BEGONIA sp.: Coleosporium begoniae.
- BENTHAMANTHA CINEREA (L.) Kuntze, MOLLIS (H.B.K.) Alef.: Phragmopyxis deglubens.
- BERBERIS FASCICULARIS (DC.) Sims.: Cumminsiella standleyana, Puccinia berberidis-trifoliae.
- BIDENS HETEROPHYLLA Ort., HOLWAYI Sheriff & Blake, LEUCANTHA L.: Uromyces bidenticola.
- BIDENS PILCSA L.: Uromyces bidenticola, U. bidentis.
- BIDENS RIPARIA H.B.K.: Uromyces bidentis.
- BIDENS SQUARROSA H.B.K., TRIPLINERVIA H.B.K.: Uromyces bidenticola.
- BITZEA INGAE (Syd.) Mains, on Inga edulis, Jutiapa: S 76293; on I. micheliana, Alta Verapaz: S 69551, 71504; Escuintla: J; on I. spuria, Santa Rosa: S 78424. This species was long classified as a Ravenelia, the telia being overlooked when present. Sydow first described the telial stage, but under the name of Maravalia ingae. For a description of the genus Bitzea see Mains (38).
- BIVONEA see JATROPHA.
- BLECHUM BROWNEI (Sw.) Juss.: Puccinia ruelliae.
- BOMAREA ACUTIFOLIA Herb., CALDASII (H.B.K.) Standl.: Puccinia pallor.
- BORBERIA LAEVIS (Lam.) Griseb., CCYMCIDES (Burm.) DC., SUAVEOLENS Mey., VERTICILLATA (L.) Mey.: Puccinia lateritia.
- BOUDELUA FILIFORMIS (Fourn.) Griff.: Puccinia bartholomaei.
- BOUARDIA LEIANTHA Benth.: Uromyces bouvardiae Syd.
- BRACHYPODIUM MEXICANUM (R. & S.) Link: Puccinia subdigitata.
- BRICKELLIA ADENOCARPA Rob., CAVANILLESII Gray: Pucciniosira brickelliae.
- BRICKELLIA SCCPARIA (DC.) Gray: Puccinia kuhniae.
- BROGNIA sp. = error for LONCHOCARPUS RUGOSUS.
- BUBBIA MEXICANA Arth., on Croton draco, Jutiapa: S 76291; on C. payauensis, Jutiapa: S 75225. Known otherwise from three Mexican specimens. The wall of the urediospores is strongly thickened at the apex.
- BUTTERFLIA LATERALIS Presl: Puccinia filipes.
- BULLIA see PUCCINIA.
- BURCHESIA sp.: Puccinia sanguinolenta.
- BYRSOPIA CRASSIFOLIA (L.) DC.: Aecidium byrsonimatis, Crossospora notata.
- CAC. L. CALOTRICHIA Blake: Puccinia senecionicola.
- CALCEOLIPINIA EXOSTEMMA Moc. & Sessé: Ravenelia inconspicua.
- CALCEALPINIA PULCHERRIMA (L.) Sw.: Ravenelia humphreyana.
- CALEA INSIGNIS Blake, INTEGRIFOLIA (DC.) Hemsl.: Puccinia ordinata.
- CALFA ZACATECHICHI Schl.: Puccinia caleae.
- CALLIANDRA CHLADERIANA (B. & R.): Ravenelia ectypa.
- CALLIANDRA CONZATTIANA (B. & R.): Uredo quichensis.
- CALLIANDRA GRACILIS Klotzsch: Ravenelia ectypa.
- CALLIANDRA HOUSTONIANA (Mill.) Standl.: Ravenelia bizonata.
- CALLIOSPERMA see UROPHYXIS.



- CALOPOGONIUM GALACTICIDES (H.B.K.) Benth.: Uromyces calopogonii.  
 CANAVALIA VILLOSA Benth.: Phakopsora vignae.  
 CANTA INDICA L.: Puccinia cannae.  
 CAPSICUM ANNUUM L.: Puccinia paulensis.  
 CARDIOSPERMUM COLUTEOIDES H.B.K., CORINDUM L., GRANDIFLORUM Sw.:  
Puccinia arechavaletae.  
 CAREX POLYSTACHYA Wahl.: Puccinia caricis-polystachyae.  
 CASSIA BIFLORA L.: Ravenelia antiquana, R. spinulosa.  
 CASSIA NICARAGUENSIS Benth.: Ravenelia spinulosa.  
 CASTILLEJA COMMUNIS Benth.: Puccinia nesodes.  
 CASTILLEJA INTEGRIFOLIA L.: Cronartium coleosporioides.  
 CASTILLEJA TENUIFLORA Benth.: Cronartium coleosporioides, Puccinia nesodes.  
 CAYAPONIA RACEMOSA (Sw.) Cogn.: Uromyces hellerianus.  
 CENCHRUS ECHINATUS L., PILSUS H.B.K., VIRIDIS Spreng.: Puccinia cenchri.  
 CENTAUREA CYANUS L.: Puccinia cyani.  
 CEROTELIUM FICI (Cast.) Arth., on Ficus carica, Chimaltenango: S 80812; Huehuetenango: S 82748; Retalhuleu: S 87783; Sacatepéquez; S 65284; on Morus insignis, Chimaltenango: S 79987. This is a common tropical rust but usually present as uredia. Telia have not been found in the Americas. Related hosts will be found under Uredo ficina, which has frequently been confused with C. fici.  
 CESTRUM AURANTIACUM Lindl., GUATEMALENSE Francey: Uromyces cestri.  
 CESTRUM LANATUM M. & G.: Uromyces maculans.  
 CHAMAESYCE see EUPHORBIA.  
 CHRYSOMYXA PYROLAE (DC.) Rostr., on Pyrola secunda var. elator, Quezaltenango: Steyermark 34776. The specimen is scant but the rust undoubtedly is C. pyrolae although Picea, the alternate host, does not occur south of the United States. The species has not been recorded previously south of New Mexico.  
 CIONOTHRIX PRAELONGA (Wint.) Arth., on Eupatorium morifolium (E. populifolium), Guatemala: H 491, 638, 840; Izabal: K 5301, 5302; on E. odoratum, Jutiapa: S 78478; Suchitepéquez: H 525; on E. sp., Alta Verapaz: S 70665. This Cronartium-like micro-cyclic rust is common in tropical regions of the Americas.  
 CIRSIUM MEXICANUM DC., SUBCIRSIACEUM (Less.) Sch. Bip.: Puccinia cirsii.  
 CISSUS RHOMBIFOLIA Vahl.: Crossospora wilsoniana.  
 CISSUS SICYOIDES L.: Endophyllum circumscriptum.  
 CLEMATIS DIOICA L.: Puccinia wattiana.  
 CLETHRA LANATA M. & G.: Puccinia hiascens.  
 CLIPADIUM DONNELL-SMITHII Coult.: Endophyllum decoloratum.  
 COLEOSANTHUS see BRICKELLIA.  
 COLEOSPORIUM BEGONIAE Arth., on Begonia sp., Chimaltenango: J 232. Known otherwise only from Mexico.  
 COLEOSPORIUM DOMINGENSIS see COLEOSPORIUM PLUMIERAE.  
 COLEOSPORIUM ELEPHANTOPEDIS (Schw.) Thüm., on Elephantopus hypomalacus, Retalhuleu: H 704; on E. mollis, Alta Verapaz: S 89716, J 1910; Izabal: K 5362, S 73055; Jutiapa: S 76689, 77104; Jutiapa:

- S. 75465; Quezaltenango: S 87954; Retalhuleu: S 66754. The aecial stage, which occurs on the genus Pinus has not been collected in Guatemala.
- COLEOSPORIUM EUPATORII Arth., on Eupatorium collinum, Chimaltenango: S 79731; Huehuetenango: H 758; Quezaltenango: K 5458; Sacatepéquez: S 60757; on E. sp., Chimaltenango: H 659; Quezaltenango: H 812, K 5417. Known only from tropical regions of North America. The aecial stage is unknown.
- COLEOSPORIUM IPCMOEAE (Schw.) Burr., on Ipomoea glabriuscula, Guatemala: H 471; on I. hederacea, Guatemala: K 5405, 5409; on I. macrocalyx, Guatemala: K 5408, 5450; on I. morelii, Santa Rosa: S 77745; on I. muricata, Guatemala: H 1; on I. murucoides, Jutiapa: S 75059; Sacatepéquez: S 63852; on I. nil, Guatemala: S 59699; Jalapa: S 76509; Jutiapa: S 75888; Santa Rosa: S 77669, 78237, 79717; on I. parasitica, Jutiapa: S 75264; on I. petri, Guatemala: H 619; Solola: H 181; on I. purpurea, Chimaltenango: S 80114; Sacatepéquez: S 58015, 63174; on I. tynianthina, Guatemala: K 5435; on I. sp., Chimaltenango: S 80105; Jutiapa: S 75178, 75346; Quezaltenango: S 83710, 84839, 84863; Santa Rosa: S 77677, 79426; on Quamoclit coccinea, Chimaltenango: S 79916; Jalapa: S 77272; Sacatepéquez: S 59819. This is a species of wide distribution in North and South America. The aecial stage on Pinus has not been found in Guatemala.
- COLEOSPORIUM PARAPHYSATUL Diet. & Holw., on Liabum discolor, Alta Verapaz: S 89749, 90456; Chimaltenango: S 80194; Guatemala: K 6298; Quezaltenango: S 85017; Sacatepéquez: S 60321, 60818; San Marcos: S 66272; on L. hypochlorum, Retalhuleu: H 703; on L. hypoleucum, Chimaltenango: S 79835; Jalapa: S 77537; Sacatepéquez: S 81014; Santa Rosa: S 77681, 77780, 79352; on L. platylepis, Alta Verapaz: S 70441; on L. sublobatum, Chimaltenango: S 80131; Retalhuleu: H 532; Solola: H 179; on L. sp., Retalhuleu: H 690. An interesting species because of the peridiate uredia and long narrow urediospores. The aecial stage is not known. Reported also from Costa Rica, El Salvador, and Mexico.
- COLEOSPORIUM PLUMIERAE Pat., on Plumiera acutifolia?, Solola: K; on P. lutea, Quezaltenango: Donnell-Smith; on P. rubra, Quezaltenango: K 5460. Known also from Panama, the West Indies, and South America. The aecial stage is unknown.
- COLEOSPORIUM SPIGELIAE Arth., on Spigelia humboldtiana, Izabal: S 23933. Known otherwise from British Honduras, El Salvador, and Mexico. The aecial stage is unknown.
- COLEOSPORIUM STEVIAE Arth., on Stevia elatior, Chimaltenango: J 246; on S. lucida, Huehuetenango: H 772; El Quiché: J 1455; on S. ovata Willd., Chimaltenango: S 79991; on S. polycephala, Quezaltenango: S 86043; on S. rhombifolia, Chimaltenango: J 135, S 60015; Jalapa: S 77471; on S. subpubescens, Quezaltenango: H 104; on S. sp., Sacatepéquez: J 876. This species also occurs in Mexico. The aecial stage is unknown.



COLEOSPORIUM VIBURNI Arth., on Viburnum discolor, Sacatepéquez: S 65127; on V. sp., Sacatepéquez: H 567, 574. The sori are usually on the leaves but in Standley's collection the fruits are infected. C. viburni occurs northward into Canada. No aecial stage has been recognized.

COLEOSPORIUM VIGUIERAE Diet. & Holw., on Verbesina agricolarum, Chimaltenango: S 79778; on V. apleura, Quezaltenango: H 739; on V. fraseri, Sacatepéquez: J 67, 873; Solola: J 81; on V. gigantea, Solola: K 5385; on V. guatemalensis, Sacatepéquez: J 850, 853; Solola: J 82; on V. holwayi, Quezaltenango: H 737; on V. hypoglaucæ, Chimaltenango: S 61833; Quezaltenango: Steyermark 34101, S 67658; on V. myriocephala, Jutiapa: S 75210; on V. perymenioides, Solola: H 172; on V. punctata, San Marcos: S 66263; on V. scabriuscula, Chimaltenango: S 80014; Jalapa: S 77233; Quezaltenango: S 84974, 86134, 87092; Retalhuleu: H 723; San Marcos: S 86266; on V. sublobata, Chimaltenango: J 1929; Escuintla: S 64920; Guatemala: H 51; Quezaltenango: S 84310, 84727, 85606, 87950; Sacatepéquez: S 61244; Santa Rosa: S 79372; Solola: H 175B; on V. turbacensis, Alta Verapaz: S 70264; Chimaltenango: S 79773; Chiquimula: S 74644; Sacatepéquez: S 58593; locality unknown: K 5315; on V. sp., Quezaltenango: S 83449; Sacatepéquez: H 575, J 70a; Santa Rosa: J. Common in Guatemala and the warmer regions of North America. The aecial stage is unknown.

COLOGANIA GLABRICR Rose: Uromyces cologniae.

COLUBRINA FERRUGINOSA Brongn.: Uredo colubrinae.

COMMELINA ELEGANS H.B.K.: Phakopsora tecta, Puccinia commelinae.

CONYZA ASPERIFOLIA, TORQUIS see ARCHIBACCHARIS.

CORDIA ALLICODORA (R. & P.) Chm.: Puccinia cordiae.

CORDIA FERRUGINEA (Lam.) R. & S., RIPARIA H.B.K.: Alveolaria cordiae.

COREOPSIS LUTICA DC.: Puccinia electrae.

CORNUTIA GRANDIFOLIA (S. & C.) Schauer: Puccinia urbaniana.

CORNARTIUM COLEOSPORICIDES (Dist. & Holw.) Arth., on C. stilleja integrifolia, Quezaltenango: S 83414; on C. tenuiflora, Quezaltenango: H 788; Sacatepéquez: H 644; Solola: H 125a; on C. sp., Quezaltenango: H 726; Lamourouxia cordifolia, Guatemala: H 685; on L. dependens, Sacatepéquez: H 568; on L. rhinanthifolia, Quezaltenango: H 101; on Pinus sp., Chimaltenango: J. Occurs northward into the United States. The aecial stage on Pinus corresponds to Peridermium filamentosum Peck.

CORNARTIUM HARKNESSII see CORNARTIUM COLEOSPORICIDES.

CORNARTIUM QUERCUM (Berk.) Miyabe sens. lat., on Pinus montezumae, Chimaltenango: S 64354; Huehuetenango: S 82349; Jalapa: S 76740; on P. cocarpa, Baja Verapaz: S 69720; Izabal?: Cook; on P. sp., Alta Verapaz: S 71043; Baja Verapaz: K 6075; Chimaltenango: J 644; on Quercus corrugata, Chimaltenango: J 349; on Q. tomentosa, Guatemala: K 5304; on A. sp., Guatemala: H 56, 866. In the aecial stages both cone-infecting and branch-infecting forms are represented. No attempt has

- been made to segregate these into the separate species to which they might be referable, although the material is probably heterogeneous. A widely distributed species.
- CROSSOPSCORA NOTATA Arth., on Byrsionima crassifolia, Jutiapa: J. This collection has aecia and uredia in close association. The aecia agree with Aecidium vinnulum, Jacks. & Holw., thus substantiating Jackson's (28) suggestion that the species might represent the aecial stage of C. notata. Known from Central and South America and the West Indies.
- CROSSOPSCORA STEVENSII Syd., on Fischera sp., Zacapa: K; on Macroscopsis sp., Zacapa: K 7022; on Mandevilla subsagittata, Santa Rosa: S 77952. This rust was first reported from Guatemala by Davidson (21) as on Fischera sp. The host of a specimen in the Arthur Herbarium was determined by J. M. Greenman as Macroscopsis sp. Both records are cited above, although they are probably from the same collection. For a description see Sydow (43). Known otherwise from British Guiana and Trinidad.
- CROSSOPSCORA WILSONIANA Arth., on Cissus rhombifolia, Izabal: K 5340. This is the first report of this rust from Guatemala. The specimen was found in a box of unidentified Kellerman collections in the Arthur Herbarium. Known from Central and South America and the West Indies.
- CROTALARIA LONGIROSTRATA H. & A., VITELLINA Ker.: Haplopyxis crotalariae.
- CRUCIUM DRACC Schlect., PAYAQUENSIS Standl.: Bubakia mexicana.
- CRUSEA CALCEPHALA DC.: Puccinia lateritia.
- CUCURBITACEAE (undet.): Uromyces hellerianus.
- CUMINSIELLA STANDLEYANA Cum., on Berberis fascicularis, Huehuetenango: J 1690a, S 81803, 81819a; Sacatepéquez: K 4624, S 65222. The Kellerman specimen has previously passed as C. sanguinea (Uromyxis sanguinea), a species which does not occur in Guatemala. C. standleyana is known only from the above collections. For descriptions of the telial and aecial stages, respectively, see Cummins (15, 20).
- CUNILA LEUCANTHA Benth., POLYANTHA Benth.: Puccinia fuscata.
- CUPHEA AEQUIPETALA Cav., APPENDICULATA Benth., AXILLIFLORA Koehne: Puccinia cupheae.
- CUPHEA HOOKERIANA Walp.: Puccinia jaliscensis.
- CUPRESSUS BENTHAMII Endl.: Gymnosporangium meridissimum.
- CYDISTA sp.: Prospodium cydistae.
- CYNODON DACTYLON (L.) Pers.: Puccinia cynodontis.
- CYPHERUS FERAX Rich.: Puccinia cyperi, P. flavo-virens.
- CYPHERUS HERMAPHRODITUS (Jacq.) Standl., INCOMPLETUS (Jacq.) Link: Puccinia cyperi.
- CYPHERUS MELANOSTACHYUS H.B.K.: Uredo obnixa.
- CYPHERUS MEYENIANUS Kunth: Puccinia canaliculata.
- DALIA MAXONI Saff.: Aecidium dahliae-maxoni.
- DAHLBERGIA GLABRA (Mill.) Standl.: Sphaerophragmium fimbriatum.
- DALIA see PARSELLA.



- DASYSPORA GREGARIA (Kunze) P. Henn.: on Xylopia frutescens, Izabal: K 5330, S 72261; El Petén: Lundell 2557A. This species is often cited as D. foveolata B. & C. Mains (36) has recently discussed this rust and published photographs of the spore stages. Known also from British Honduras, Costa Rica, Panama, and South America.
- DESMELLA SUPERFICIALIS (Speg.) Syd., on Trismeria trifoliata, Escuintla: S 60154. The morphology of the sori of Desmella has been described and illustrated by Cummins (14). D. superficialis occurs rather generally in tropical regions of the Americas on several ferns. Telia have not been collected on Trismeria.
- DESMODIUM ANGUSTIFOLIUM Schl.: Uromyces hedysari-paniculati.
- DESMODIUM INTORTUM (Mill.) Fawc. & Rendle: Phakopsora meibomiaae, Uromyces hedysari-paniculati.
- DESMODIUM ORBICULARE Schl.: Uromyces antiquanus.
- DESMODIUM SCCRPIURUS (Sw.) Desv., STROBILACEUM Schl., TENUIPES Blake: Uromyces hedysari-paniculati.
- DICAEOMA see PUCCINIA.
- DICHEIRINIA BINATA (Berk.) Arth., on Erythrina glauca, Izabal: K 5465 (type of Uredo cabreriana Kern & Kellerm.). Recorded for Central and South America and the West Indies. In 1935 Cummins (8) reviewed and illustrated the four species of Dicheirinia known at that time. Three species have been added since.
- DICHONDRA SERICEA Sw.: Puccinia dichondrae.
- DICHROMENA CILIATA Vahl., RADICANS S. & C.: Puccinia dichromenae.
- DICODIA SARMENTOSA Sw., TERES Walt.: Puccinia lateritia.
- DIPHYSA FLORIBUNDA Peyr., ROBINICIDES Benth.: Uropvixis diphysae.
- DORSTENIA CONTRAJERVA L., HOUSTONI L.: Uredo rubescens.
- DYSCHORISTE QUADRANGULARIS (Cerst.) Kuntze: Puccinia dyschoristes.
- ELEOCHARIS GENICULATA (L.) R. Br.: Puccinia liberta.
- ELEOCHARIS sp.: Puccinia liberta, Uredo incomposita.
- ELEPHANTOPUS HYPOCALACUS Blake, MOLLIS H.B.K.: Coleosporium elephantopodis.
- ELEUTHERANTHERA RUDERALIS (Sw.) Sch. Bip.: Puccinia spagazziniana.
- ELYTRARIA IMBRICATA (Vahl.) Pers.: Puccinia elytrariae.
- ENDOPHYLLICIDES PORTORICENSIS Whetzel & Olive, on Mikania cordifolia, Retalhuleu: H 538; on M. micrantha, Escuintla: S 60147; Izabal: S 24084, 72494, 72582; Retalhuleu: S 87859, 88386; on M. scandens, Alta Verapaz: Maxon & Hay 3239; Izabal: K 5307, 5349, 7465; on M. sp., Escuintla: J 1692; Izabal: H 603, K 5370, S 24084. Reported from Central and South America and the West Indies.
- ENDOPHYLLUM CIRCUMSCRIPTUM (Schw.) Whetzel & Olive, on Cissus sicyoides, Izabal: K 5335, K 5463, S 23870; Retalhuleu: S 88244; Sacatepéquez: J 1923; Suchitepéquez: K 4609; Zacapa: K 5440, 5462; on C. sp., Izabal: H 596; Retalhuleu: H 695, 720. Reported from Central and South America and the West Indies.

- ENDOPHYLLUM DECOLORATUM (Schw.) Whetzel & Clive, on Clibadium donnell-smithii, Guatemala: Donnell-Smith. Reported from Mexico, the West Indies, and South America.
- ENTADA sp.: Ravenelia entadae.
- EPICAMPIS MACROURA (H.B.K.) Benth.: Uromyces epicampis.
- ERAGROSTIS LIMBATA Fourn.: Uromyces eragrostidis.
- ERECTOSIS see VERNONIA.
- ERIGERON BOMARIENSIS L., DEAMII Rob., KARVINSKIANUS DC., SPATHULATUS Vahl: Puccinia asteris.
- ERIOSPORANGIUM see PUCCINIA.
- ERYTHRINA BERTEROANA Urban: Uredo erythrinae.
- ERYTHRINA GLAUCA Willd.: Dicheirinia binata.
- EUCHLAENA MEXICANA Schrad.: Angiopsora pallescens, Puccinia polysora, P. sorghi.
- EUMECANTHUS see EUPHORBIA.
- EUPATORIUM AREOLARIA DC.: Puccinia solidipes.
- EUPATORIUM ASCHENBORNIANUM Schauer: Baeodromus eupatorii.
- EUPATORIUM COLLINUM DC.: Coleosporium eupatorii, Puccinia conoclinii.
- EUPATORIUM DONNELL-SMITHII Coul.: Baeodromus eupatorii.
- EUPATORIUM GLANDULOSUM H.B.K.: Puccinia conoclinii.
- EUPATORIUM LIGUSTRINA DC.: Puccinia aegopogonis.
- EUPATORIUM MAIRETIANUM DC.: Baeodromus eupatorii, Puccinia aegopogonis, P. basiporula.
- EUPATORIUM MORIFOLIUM Mill.: Cionothrix praelonga.
- EUPATORIUM NEAENUM DC.: Puccinia conoclinii.
- EUPATORIUM ODORATUM L.: Cionothrix praelonga.
- EUPATORIUM CRESBICIDES Rob.: Puccinia conoclinii.
- EUPATORIUM PANAMAENSIS Rob.: Puccinia tolimensis.
- EUPATORIUM PHOENICOLEPIS Rob.: Puccinia basiporula, P. hogsoniana.
- EUPATORIUM PYCNOCEPHALOIDES Rob.: Puccinia conoclinii, P. tolimensis.
- EUPATORIUM PYCNOCEPHALUM Less.: Baeodromus eupatorii, Puccinia conoclinii, P. tolimensis.
- EUPATORIUM RAFAELENSE Coul.: Puccinia aegopogonis, P. basiporula.
- EUPATORIUM SCHULTZII Schnittsp. vars.: Puccinia hogsoniana.
- EUPATORIUM TUBIFLORUM Benth. see E. AREOLARIA.
- EUPATORIUM sp.: Aecidium ampliatus, Pucciniosira eupatorii.
- EUPHORBIA ADENOPTERA Bertol., BRASILIENSIS Lam.: Uromyces proëminens.
- EUPHORBIA CARACASANA Kl. & Gke., COTINIFOLIA L.: Puccinia euphorbiae var. longipes.
- EUPHORBIA EPHEDRAMORPHA Bartlett: Puccinia velata.
- EUPHORBIA GRAMINEA Jacq.: Puccinia velata, Uromyces proëminens.
- EUPHORBIA HIRTA L.: Uromyces proëminens.
- EUPHORBIA LANCIFOLIA Schl.: Aecidium seriatum.
- EUPHORBIA LASIOCARPA Klotzsch: Uromyces proëminens.
- EUPHORBIA SCOTIANA Boiss. see E. cotinifolia.
- EUPHORBIA THYMIFOLIA L.: Uromyces proëminens.
- EVOLVULUS ALSINCIDES L., MUMULARIA L.: Puccinia lithospermi.
- EYSENHARDTIA ADENOSTYLIS Baill.: Uropyxis holwayi.
- FICUS AUREA Nutt.: Uredo ficina.
- FICUS CARICA L.: Cerotelium fici.



- FIGUS INVOLUTA (Liebm.) Miq., PADIFOLIA H.B.K.: Uredo ficina.  
 FISCHERIA sp.: Crossopora stevensii.  
 FUCHSIA CHIAPENSIS Brandeg., MICROPHYLLA H.B.K.: Puccinia fuchsiae.  
 FUCHSIA MINUTIFLORA Hemsl.: Aecidium fuchsiae.  
 FUCHSIA SPLENDENS Zucc.: Pucciniastrum fuchsiae.  
 FUIRENA INCOMPLETA Nees.: Puccinia fuirenae.  
 FUNASTRUM CRASSIFOLIUM (Hemsl.) Schlechter: Puccinia obliqua.  
 GALIUM MEXICANUM H.B.K.: Puccinia eximia.  
 GALIUM sp.: Puccinia eximia, P. punctata.  
 GAYA CALYPTRATA (Cav.) H.B.K.: Puccinia heterospora.  
 GERASCANTHUS see CORDIA.  
 GNAPHALIUM ATTENUATUM DC., LEPTOPHYLLUM DC., OXYPHYLLUM DC.:  
     Puccinia investita.  
 GNAPHALIUM RHODANTHUM Sch. Bip.: Puccinia gnaphalii.  
 GOLPHRENA TUERCKHEIMII (Vatke) Uline & Bray: Uromyces bonariensis.  
 GONOLCBUS sp.: Puccinia obliqua.  
 GOUANIA DOMINGENSIS L.: Uromyces gouaniae.  
 GOUANIA LUPULCIDES (L.) Urban: Puccinia gouaniae, P. invaginata.  
 GOUANIA POLYGAMA (Jacq.) Urban: Puccinia gouaniae.  
 GYMNOCLMIA see HYMENOSTEPHIUM.  
 GYMNOSPORANGIUM GUATEMALIANUM Crowell, on Amelanchier nervosa,  
     Sacatepéquez: S 59952; Chimaltenango: J 1444 (type).  
     The telial stage of this rust has not been demonstrated but  
     see note under G. meridissimum. For a description and illus-  
     tration see Crowell (7). Known only from the above collections.  
 GYMNOSPORANGIUM MERIDISSIMUM Crowell, on Cupressus benthami,  
     Chimaltenango: J (type); Sacatepéquez: S 60291. This species  
     causes fusiform galls on branches and trunks. Johnston (in litt.)  
     writes "---- it is very abundant here, and I consider it really  
     of economic importance. Cypress is used here extensively as a  
     timber tree and these knots frequently spoil the trunks of  
     young trees ----." The aecial stage has not been demonstrated  
     but since both this species and G. guatemalianum on Amelanchier  
     occur in the same region it is possible that they represent  
     telial and aecial stages of the same rust. For a description  
     and illustration see Crowell (7). Known only from the above  
     collections.  
 GYMNOSPORANGIUM SPECIOSUM Peck; on Juniperus mexicana, Huehuetenango:  
     Dodge, S 81737. For discussion and a photograph of an infected  
     tree see Cummins (20). However, since that note was written I  
     have received from Dr. C. W. Dodge a specimen which he collected  
     in May 1941 and which bears an abundance of telia. He wrote:  
     "I am sending you --- a very striking Gymnosporangium on  
     Juniperus mexicana. It produced large ribbon-like structures  
     10 to 15 centimeters long and 2 to 3 centimeters wide, hanging  
     from the trunks and larger branches." The teliospores are from  
     1 - 4-celled and measure 16-24 x 53-135 (-145)  $\mu$ . Examination  
     of specimens of G. speciosum shows that the species is more vari-  
     able than is indicated by published descriptions. The teliospores  
     of the type are 2 - 3-celled and reach 80  $\mu$  in length. In a

specimen from Arizona the teliospores reach 119  $\mu$  and in a specimen from New Mexico (Berth., N. Am. Ured. 3424) they reach 102  $\mu$  in length. In both 4-celled spores occur. A few 1-celled spores can be found in most collections. The Guatemalan collections were all made in the Cuchumatanes Mts. Mr. Standley has advised me that although the Field Museum has no specimens of the aecial host genus, Philadelphus, from the Cuchumatanes he has no doubt that P. myrtoides does occur there. There is little doubt but that the Guatemalan rust should be referred to G. speciosum.

- HACKELIA MEXICANA (C. & S.) I. M. Johnst.: Puccinia hackeliae.  
 HAPLOPYXIS CROTALARIAE (Arth.) Syd., on Crotalaria longirostrata, Guatemala: K 5327; on C. vitellina, Guatemala: K 5397 (type of Uropyxis crotalariae Arth.); Santa Rosa: S 77855. This is the only species in the genus. Haplopyxis has the characteristics of the genus Uropyxis but with unicellular teliospores. Known otherwise from Brazil.  
 HELIANTHUS ANNUUS L.: Puccinia helianthi.  
 HELIOGNIA sp.: Puccinia heliconiae.  
 HELIOCARPUS sp.: Pucciniosira pallidula.  
 HELIOTROPIUM INDICUM L.: Accidium guatemalense, Puccinia heliotropii.  
 HELIOTROPIUM PHYSOCALICINUM Donn. Sm., RUFIPILUM (Benth.) I. M. Johnst.: Puccinia gilva.  
 HEMIBACCHARIS see ARCHIBACCHARIS.  
 HENRYA IMBRICATA Donn. Sm.: Puccinia henryae.  
 HETEROPTERIS LAURIFOLIA (L.) Juss.: Puccinia laurifoliae.  
 HIERACIUM ABSCISSUM Less.: Puccinia hieracii.  
 HYDROCOTYLE BONARIENSIS Lam., MEXICANA C. & S., UMBELLATA L.: Puccinia hydrocotyles.  
 HYMENOSTEPHIUM CORDATUM (H. & A.) Blake: Puccinia gymnomomiae, P. semota.  
 HYMENOSTEPHIUM MICROCEPHALUM (Less.) Blake: Puccinia gymnomomiae.  
 HYPERICUM PRATENSE C. & S.: Uromyces hyperici.  
 HYPTIS BREVIPES Poit., CAPITATA Jacq.: Puccinia medellinensis.  
 HYPTIS LILACINA Schiede & Deppe: Puccinia fidelis.  
 HYPTIS MUTABILIS (Rich.) Briq.: Puccinia amphiospora, P. hyptidis-mutabilis.  
 HYPTIS ORCUTIFOLIA Benth.: Puccinia fidelis.  
 HYPTIS PECTINATA (L.) Poir.: Puccinia fidelis, P. hyptidis, P. medellinensis.  
 HYPTIS POLYSTACHYA H.B.K.: Puccinia medellinensis.  
 HYPTIS STELLULATA Benth.: Puccinia parilis.  
 HYPTIS SUAVEOLENS (L.) Poit.: Puccinia medellinensis.  
 HYPTIS URTICOIDES H.B.K.: Puccinia fidelis.  
 IMPERATA BRASILIENSIS, error for ANDROPOGON SACCHARICIDES.  
 INDIGIFERA MUCRONATA Spreng.: Ravenelia indigoferae, Uromyces indigoferae.  
 INDIGIFERA SUPFRUTICOSA Mill.: Ravenelia indigoferae.  
 INGA EDULIS Mart.: Bitzeia ingae, Uredo ingae.



- INGA MICHELIANA Harms, SPURIA H. & B.: Bitzea ingae.  
 IPOMOEA FISTULOSA Mart.: Puccinia noticolor.  
 IPOMOEA GLABRIUSCULA House: Coleosporium ipomoeae, Puccinia crassipes.  
 IPOMOEA HEDERACEA (L.) Jacq., MACROCALYX (R. & P.) Choisy: Coleosporium ipomoeae.  
 IPOMOEA MORELII Duch. & Walp.: Coleosporium ipomoeae, Puccinia noticolor.  
 IPOMOEA MURICATA R. & S.: Coleosporium ipomoeae.  
 IPOMOEA MURUCCOIDES R. & S.: Coleosporium ipomoeae, Puccinia noticolor.  
 IPOMOEA NIL (L.) Roth: Coleosporium ipomoeae.  
 IPOMOEA PARASITICA (H.B.K.) Don: Coleosporium ipomoeae, Puccinia noticolor.  
 IPOMOEA PETRI Donn. Sm., PURPUREA (L.) Roth: Coleosporium ipomoeae.  
 IPOMOEA TILIACEA (Willd.) Choisy, TRIFIDA (H.B.K.) Don., TRILOEA L.: Puccinia crassipes.  
 IPOMOEA TYRIANTHINA Lindl.: Coleosporium ipomoeae.  
 IRESINE CALEA (Ibáñez) Standl.: Uromyces celosiae.  
 IRESINE CELOSIA L.: Uromyces celosiae, U. ictericus.  
 JACQUEMONTIA NODIFLORA (L.) Desv.: Uromyces gemmatus.  
 JACCBINA sp.: Puccinia varia.  
 JATROPHA CURCAS L.: Phakopsora jatrophiicola.  
 JATROPHA TUBULOSA M. Arg., URENS L.: Uromyces oaxacanus.  
 JUNCUS EFFUSUS L.: Uromyces junci-effusi.  
 JUNIPERUS MEXICANUS Spreng.: Gymnosporangium speciosum.  
 JUSTICIA INAEQUALIS B. & H.: Puccinia ruelliae.  
 KLEBAHNIA see UROMYCES.  
 KUEHNECLA ARTHURI (Syd.) Jacks., on Rubus amplior, Quezaltenango: J 432; on R. schiedeana, Alta Verapaz: von Tuerckheim (type of Uromyces arthuri Syd.); on R. sp., Quezaltenango: H 832. For a realignment of Rubus rusts previously assigned to Spirechina see Jackson (27). Known only from Guatemala.  
 KUEHNECLA GUATEMALENSIS Cumm., on Rubus tuerckheimii, Guatemala: S 80704 (type). This species has apically lobed teliospores like those of K. arthuri but in longer chains and the aeciospores are echinulate. The primary infections cause large galls as in K. loeseneriana and K. arthuri. For a description see Cummins (20).  
 KUEHNECLA LOESENERIANA (P. Henn.) Arth., on Rubus sp., Huehuetenango: C. & E. Seler 2687 (type). Known also from Costa Rica and South America.  
 KUEHNECLA MALVICOLA (Speg.) Arth., on Malvaviscus arboreus (M. mollis), Guatemala: K 5359; Huehuetenango: H 766; Sacatepéquez: H 543; Suchitepéquez: K 5375; on M. sp., Chimaltenango: J 69. Occurs from the southern United States southward into South America.  
 KYLLINGA ODCRATA Vahl., PUMILA Michx.: Puccinia cyperi.  
 LAGASCEA HELIANTHIFOLIA var. SUAVEOLENS (H.B.K.) Rob.: Puccinia noccae.  
 LAMCURCUXIA CORDIFOLIA Schl. & Cham., DEPENDENS Benth., RHINANTHIFOLIA H.B.K.: Cronartium coleosporioides.

- LAMCURCUXIA VISCOSA H.B.K.: Puccinia nesodes.  
 LANTANA CAMARA L., HISPIDA H.B.K.: Prospodium tuberculatum.  
 LANTANA INVOLUCRATA L.: Aecidium lantanae, Puccinia lantanae.  
 LASIACIS DIVARICATA (L.) Hitchc., RUSCIFOLIA (H.B.K.) Hitchc.,  
Angiopsora lenticularis.  
 LIABUM DISCOLOR (H. & A.) B. & H., HYPOCHLORUM Blake, HYPOLEUCUM  
 Greenm., PLATYLEPIS Sch. Bip., SUBLOBATUM Rob.: Coleosporium  
paraphysatum.  
 LIPPIA ASPERIFOLIA Rich., DULCIS Trev.: Prospodium lippiae.  
 LIPPIA MYRIOCEPHALA S. & C.: Prospodium conjunctum, P. elatipes,  
P. lippiae, Puccinia senilis.  
 LIPPIA STRIGOSA Turcz., UMBELLATA Cav.: Prospodium lippiae.  
 LOESELIA CILIATA L., GLANDULOSA (Cav.) Don: Puccinia fumosa.  
 LONCHOCARPUS MICHELIANUS Pittier, RUGOSUS Benth.: Ravenelia mera.  
 LONCHOCARPUS sp.: Ravenelia lonchocarpi.  
 LOPEZIA HIRSUTA Jacq.: Puccinia fuchsiae, Pucciniastrum fuchsiae.  
 LORANTHUS see PSITTACANTHUS and STRUTHANTHUS.  
 LUPINUS FLABELLARIIS Bertol, MONTANUS H.B.K.: Uromyces montanus.  
 LYCIANTHES QUICHENSIS (Coul. & Donn. Sm.) Bitter: Aecidium  
lyciantis.  
 LYSILCMA ACAPULCENSIS (Kunth) Benth.: Ravenelia sololensis.  
 MACHAERIUM BICVULATUM Mich.: Uredo machaeriticola.  
 MACROSCEPSIS sp.: Crossospora stevensii.  
 MAHONIA see BERBERIS.  
 MAINSIA EPIPHYLLA (Arth.) Jacks., on Rubus eriocarpus, Quezal-  
 tenango: S 84352; Sacatepéquez: S 65167. Known otherwise  
 only from the type collection made in Texas. For a review of  
 the genus Mainsia see Jackson (27).  
 MAINSIA HOLWAYI Jacks., on Rubus adenotrichus, Chimaltenango:  
 S 64298; on R. irasuensis, San Marcos: S 86456. Originally  
 named and otherwise reported only from South America.  
 MAINSIA PITTIERIANA (P. Henn.) Jacks., on Rubus sp. Guatemala:  
 K. Reported by Davidson (21) under the generic name Spirechina.  
 Known otherwise only from Costa Rica.  
 MAINSIA RUBI (Diét. & Holw.) Jacks., on Rubus amplior, Chimaltenango:  
 S 61550; Huehuetenango: S 65755; on R. coriifolius,  
 Totonicapán: S 83996; on R. eriocarpus, Chimaltenango:  
 S 80245; Quezaltenango: S 86140; on R. glaucus, Alta Verapaz:  
 S 90215; Guatemala: K 4625; Sacatepéquez: J 231, K 5319,  
 5320, 5321; San Marcos: Steyermark 36585; on R. irasuensis,  
 Huehuetenango: S 82002; Quezaltenango: S 83963; Totonicapán:  
 S 84073; San Marcos: S 85288; on R. laxus, Huehuetenango:  
 H 756; on R. miser, Quezaltenango: S 86626; locality un-  
 known: Salas; on R. polliophyllus, Sacatepéquez: K 5363;  
 Solola: K 5415; on R. pringlei, Sacatepéquez: H 80, 559, 560;  
 on R. tuerckheimii, Quezaltenango: S 86120; on R. sp.,  
 Chimaltenango: J 376; Guatemala: H 17, 33; Quezaltenango:  
 H 746; Sacatepéquez: J 230. This species, apparently very  
 common in Guatemala, has been reported from Mexico, Costa Rica,  
 and El Salvador. The uredia and telia are extrastomatal.



- MAINSIA STANDLEYANA Cunn., on Rubus irasuensis, Alta Verapaz: S 91714 (type). This species, known only from the type, has aeciospores with a greatly thickened apical wall and brownish teliospores with slightly thickened apical wall. An illustration accompanies the description (20). It is possible that no uredia are formed. For a review of other species of the genus see Jackson (27).
- MALVA SYLVESTRIS L.: Puccinia heterospora.
- MALVASTRUM CROMANDILLIANUM (L.) Garcke: Puccinia sherardiana.
- MALVAISCUS ARCOREUS Cav.: Kuehneola malvicola, Puccinia heterospora.
- MANDEVILLA SUBSAGITTATA (R. & P.) Woodson: Crossospora stevensii.
- MARAVALIA PRESSA (Arth. & Holw.) Mains, on Vernonia deppeana, Alta Verapaz: S 69519; Guatemala: K 4341; Huehuetenango: H 779; Sacatepéquez: S 64277; Solola: H 173. For a review of the genus Maravalia consult Mains (39). Known otherwise from Costa Rica.
- MARSDENIA MEXICANA Decne.: Puccinia marsdeniae.
- MEDICAGO LUPULINA L., SATIVA L.: Uromyces striatus.
- MEIBOMIA see DESMODIUM.
- MELANPODIUM DIVARICATUM (Rich.) DC., LONGIFOLIUM DC.: Puccinia melampodii.
- MELAMPSCRA ABIETI-CAPRAEARUM Tubeuf, on Salix chilensis, Chimaltenango: J 68, S 79760, 79957; Huehuetenango: S 82405; Sacatepéquez: H 72, S 64717; Solola: K 5473; Zacapa: S 72100; on S. taxifolia, Huehuetenango: H 763. This rust has usually been reported as M. humboldtiana, a name which Arthur (6) reduced to synonymy. The aecial stage occurs on the genus Abies, which is represented in Guatemala, but has not yet been recorded south of the United States.
- MELAMPSCRA RIBESII-PURPUREAE Kleb., on Salix bonplandiana, Quezaltenango: H 752, S 83943; Sacatepéquez: S 64689. Previous to publication of Arthur's Manual (6) this species was reported in American literature as M. confluens. The Holway collection cited above was reported by Arthur (1) as M. bigelowii.
- MELAMPSCRIDIUM CARPINI (Nees) Diet., on Ostrya virginiana var. guatemalensis, Sacatepéquez: S 58921. M. carpinii is otherwise known in North America only from northern New York.
- MELAMPSCRIDIUM HIRATSUKANUM Ito, on Alnus acuminata, Solola: H 150; on A. arguta, Quezaltenango: S 83919, 84260; on A. lorullensis, Guatemala: K; Quezaltenango: H 791; El Quiché: J 1456. In American literature this species has previously been reported as M. alni. For distinguishing characteristics and a discussion of the two species see Hiratsuka (23).
- MELAMPSCROPSIS see CHRYSOMYXA.
- MELANTHERA ASPERA (Jacq.) Steud., HASTATA Michx.: Uromyces columbianus.
- MELANTHERA NIVEA (L.) Small: Puccinia melantherae, Uromyces columbianus.
- MELOTHRIA GUADALUPENSIS (Spreng.) Cogn., SCABRA Naud.: Uromyces hellerianus.

- METASTELMA PEDUNCULARE Decne.: Puccinia obliqua.  
 MICROMERIA BROWNEI Benth.: Puccinia menthae.  
 MICROPUCCINIA see PUCCINIA.  
 MIKANIA CORDIFOLIA (L.f.) Willd.: Endophylloides portoricensis,  
Puccinia spegazzinii.  
 MIKANIA MICRANTHA H.B.K., SCANDENS Willd.: Endophylloides porto-  
ricensis.  
 MIMOSA ALBIDA H. & B.: Ravenelia mainsiana, R. mimosae-albidae.  
 MIMOSACEAE (undet.): Ravenelia distans.  
 MONTANA HIBISCIFOLIA (Benth.) Sch. Bip., PITTIERI Rob. & Greenm.,  
 PTEROPODA Blake: Uromyces montanoae.  
 MORUS INSIGNIS Bur. ? : Cerotelium fici.  
 MUCUNA ANDREANA Micheli: Uromyces illotus.  
 MUEHLENBECKIA TAMNIFOLIA (H.B.K.) Meissn.: Uredo muehlenbeckiae.  
 MUEHLENBERGIA CILIATA (H.B.K.) Kunth, QUITTENSIS (H.B.K.) Hitch.:  
Puccinia doehnia.  
 NEOBRITTONIA ACERIFOLIA (Lag.) Hochr.: Puccinia heterospora.  
 NEONELSONIA OVATA C. & R.: Puccinia obscurata.  
 NEPHLYCTIS see PROSODIUM.  
 NEUROLAENA LOBATA (L.) R. Br.: Puccinia emiliae.  
 NIGREDO see UROMYCES.  
 NISSOLIA FRUTICOSA Jacq.: Uropyxis nissoliae.  
 NOCCA see LAGASCEA.  
 NOTOPTERA BREVIPIES see OTOPAPPUS.  
 OLYRA LATIFOLIA L.: Puccinia deformata.  
 ONCIDIUM CAVENDISHIANUM Batem.: Uredo behnickiana, U. oncidii.  
 OSTRYA VIRGINIANA var. GUATEMALENSIS (Winkl.) Macbr.: Melampsoridium  
carpini.  
 OTOPAPPUS CURVIFLORUS (R. Br.) Hemsl.: Puccinia cornuta, P. oblata.  
 OXALIS DIVERGENS Benth., LATIFOLIA H.B.K.: Puccinia oxalidis.  
 PADUS see PRUNUS.  
 PANICUM ARUNDINARIAE Trin.: Angiopsora lenticularis.  
 PANICUM BARBINODE Trin.: Uromyces leptodermus.  
 PANICUM FASCICULATUM Sw.: Puccinia circumdata.  
 PANICUM MAXIMUM Jacq.: Uromyces leptodermus.  
 PAROSELA DIFFUSA (Moric) Rose, DOMINGENSIS (DC.) Millsp., NUTANS  
 (Cav.) Rose: Uropyxis daleae.  
 PASPALUM AFFINE Steud.: Puccinia substriata.  
 PASPALUM CANDIDUM (H. & B.) Kunth: Puccinia macra.  
 PASPALUM CONJUGATUM Berg: Angiopsora compressa.  
 PASPALUM FASCICULATUM Willd.: Angiopsora compressa.  
 PASPALUM HUMBOELTIANUM Fluegge: Angiopsora compressa. Puccinia  
levis.  
 PASPALUM LANGEI (Fourn.) Nash: Puccinia substriata.  
 PASPALUM PANICULATUM L.: Puccinia dolosa, P. substriata.  
 PASPALUM SQUAMULATUM Fourn.: Angiopsora compressa.  
 PAVONIA ROSEA Schl.: Puccinia exilis.  
 PAVONIA SPICATA Cav.: Puccinia heterospora.  
 PERIDERMNIUM GUATEMALENSE Arth. & Kern, on Pinus montezumae  
 (P. filifolia), Sacatepéquez: K 4626 (type), 5324, 5355.  
 All Guatemalan collections are from Antigua. The species has



been recorded also for Mexico and Florida.

PERIDERMIUM MONTEZUMAE Cumm., on Pinus montezumae, Alta Verapaz: Cook; Chimaltenango: J (type). For a description and comparison with P. guatemalense see Cummins (15). Known only from the above collections.

PERNETTIA CILIATA (C. & S.) Small: Pucciniastrum myrtilli.

PERSICARIA see POLYGONUM.

PERYMENIUM GRANDE Hensl., PURPUSII Brend., STRIGILLCSUM (Rob. & Greenm.) Greenm.: Uromyces cucullatus.

PHAKOPSCRA AESCHYNOMENES Arth., on Aeschynomene sp., Chimaltenango: J 178. The telial stage is not known. Not previously recorded for Guatemala. Known also from British Honduras, Mexico, the West Indies, and South America.

PHAKOPSCRA CHERIMOLIAE (Lagerh.) Cumm., on Annona cherimolia, Guatemala: K 5463; Huehuetenango: J 1916. Not previously recorded for Guatemala. Telia, present in the Kellerman collection, were recently described by Cummins (18). Known from Florida southward into South America.

PHAKOPSCRA JATROPHICOLA (Arth.) Cumm., on Jatropha curcas, Izabal: K 7532; Jutiapa: S 75916; Retalhuleu: S 83601; Santa Rosa: S 79092, 79720; Zacapa: K 7831. Telia were described by Cummins (10) on J. canescens from Lower California. Telia have also been collected in Brazil.

PHAKOPSCRA MEIBOMIAE Arth., on Desmodium intortum, Quezaltenango: S 67228; Sacatepéquez: S 64603; on D. sp., Chimaltenango: J 163; Sacatepéquez: S 60293. Not previously recorded for Guatemala. Reported also for the West Indies, South America, and the Philippines.

PHAKOPSORA TECTA Jacks. & Holw., on Commelina elegans, Sacatepéquez: S 58631. Not previously recorded for Guatemala. A description, accompanied by illustrations, was published by Jackson (25). Reported previously as Uredo commelyneae. Widely distributed in the tropics.

PHAKOPSORA VIGNAE (Bres.) Arth., on Canavalia villosa, Huehuetenango: S 83032; Sacatepéquez: S 81016; on Phaseolus macrolepis, Quezaltenango: S 83605, 86616; on Vigna repens, Guatemala: S 61458. A description of the telial stage, as represented on Canavalia villosa, was published by Cummins (20). Widely distributed in the tropics.

PHAKOPSORA VITIS (Thüm.) Syd., on Vitis tiliacifolia, Guatemala: H 680, J 85, S 82917; on V. vinifera, Chimaltenango: S 80806. Common in warmer regions.

PHARBITIS see IPCMOEA.

PHASEOLUS ATRCPURPUREUS Moc. & Sessé, LUNATUS L.: Uromyces phaseoli.

PHASEOLUS MACROLEPIS Piper: Phakopsora vignae, Uromyces phaseoli.

PHASEOLUS VULGARIS L.: Uromyces phaseoli.

PHRAGMIDIUM DISCIFLORUM (Tode) James, on Rosa sp., Huehuetenango: H 778; Sacatepéquez: H 544; Totonicapán: S 84068; Solola: J 86. Widely distributed on cultivated roses.

- PHRAGMIDIUM GUATEMALENSE Cum., on Potentilla heterosepala, Chimaltenango: J 650, S 61066; Sacatepéquez: H 572 (type), 657, J 341, S 65111. Known only from Guatemala. For a description see Cummins (15). The Holway collections were reported by Arthur (2) as P. potentillae.
- PHRAGMIDIUM OCCIDENTALE Arth., on Babus trilobus; Chimaltenango: S 61790; Huehuetenango: S 81734, 81790; Quezaltenango: H 813; S 84258. Occurs northward to Alaska.
- PHRAGMOPYXIS DEGLUBENS (B. & C.) Diet., on Benthamantha cinerea, Guatemala: H 607; on B. mollis, Chimaltenango: J 1463. Known otherwise from Arizona, Mexico, and Ecuador.
- PHYLLANTHUS CONAMI Sw.: Aecidium albicans, Ravenelia appendiculata.
- PILEOLARIA STANDLEYI Cum., on Pistacia mexicana, Baja Verapaz: S 91090 (type). P. standleyi is the only rust known to occur on Pistacia in the Americas and is known only from the type. For a description and illustrations see Cummins (20).
- PINUS MONTEZUMAE Lamb.: Cronartium quercuum, Peridermium guatemalense, P. montezumae.
- PINUS OCCARPA Schiede: Cronartium quercuum.
- PINUS sp.: Cronartium coleosporioides, C. quercuum.
- PIPTOCARPHA CHONTALENSIS Baker: Puccinia scorsa.
- PIQUERIA STANDLEYI Rob.: Puccinia consolinii.
- PISTACIA MEXICANA H.B.K.: Pileolaria standleyi.
- PITHECOCTENIUM ECHINATUM (Jacq.) K. Schum.: Prospodium depallens.
- PLUCHEA ODORATA (L.) Cass.: Puccinia pluchaeae.
- PLUMIERA ACUTIFOLIA Poir., LUTEA Ruiz & Pav., RUBRA L.: Coleosporium plumierae Pat.
- POA ANNUA L.: Puccinia poae-sudeticae.
- POINCIANA see CAESALPINIA.
- POLYGALA AMERICANA Mill.: Uredo peribebuyensis.
- POLYGONUM MEISNERIANUM C. & S., PUNCTATUM Ell.: Puccinia polygoni-amphibii.
- POLYNNIA MACULATA Cav.: Uromyces polymniae.
- POLYPODIUM PLESIOSCRUM Kunze: Uredinopsis sp.
- PORCOPHYLLUM RUDERALE (Jacq.) Cass.: Puccinia porophylli.
- POTENTILLA HETEROSEPALA Fritsch: Phragmidium guatemalense.
- PRIONOSCIADIUM CUNEATUM C. & R., THAPSOIDES (DC.) Mathias: Puccinia prionosciadii.
- PROSPODIUM APPENDICULATUM (Wint.) Arth., on Tecoma mollis, Sacatepéquez: H 75, K 7449; on T. stans, Chimaltenango: J 1461; Guatemala: H 469, 639a, 207; Huehuetenango: S 83038; Jalapa: K 7919, S 77143; Jutiapa: S 75213; Sacatepéquez: S 81005. For descriptions, discussion and illustrations of this and the following species see Cummins' (13) recent monographic study of the genus Prospodium.
- PROSPODIUM CONJUNCTUM (Diet. & Holw.) Cum., on Lippia myriocephala, Quezaltenango: S 84636. Not previously recorded for Guatemala. Otherwise known from two Mexican collections on L. pringlei. The species is microcyclic.
- PROSPODIUM CYDISTAE Mains, on Cydista sp.; El Petén, Lundell 1681.



- Mains (36) published photographic illustrations when he described the species. Known only from the above collection.
- PROSPODIUM DEPALLENS (Arth. & Holw.) Cumm., on Pithecoctenium echinatum, Guatemala: H 492. Otherwise known only from the type collection made in Costa Rica. The species is microcyclic.
- PROSPODIUM ELATIPES (Arth. & Holw.) Cumm., on Lippia myriocephala, Quezaltenango: H 831 (type); Solola: H 678. Otherwise known from one collection each in British Honduras and Costa Rica. The species is closely related to P. depallens.
- PROSPODIUM LIPPIAE (Speg.) Arth., on Lippia asperifolia, Guatemala: H 617; on L. dulcis, El Petén; on L. myriocephala, Guatemala: K 5451; on L. strigosa, Chimaltenango: J 358, 611; Quezaltenango: H 730, 787; Solola: H 152; on L. umbellata, Sacatepéquez: H 554; on L. sp., Chimaltenango: H 661.
- PROSPODIUM TRANSFORMANS (E. & E.) Cumm., on Tecoma stans, Guatemala: H 467, 639, S 92868. The species is microcyclic.
- PROSPODIUM TUBERCULATUM (Speg.) Arth., on Lantana camara, Chimaltenango: J 745; Sacatepéquez: S 63866; on L. hispida, Quezaltenango: S 83801; on L. sp., Huehuetenango: H 767.
- PRUNUS CAPULI Cav., PERSICA (L.) Sieb. & Zucc., SEROTINA Ehrb.: Tranzschelia pruni-spinosae.
- PSEUDABUTILON SPICATUM (H.B.K.) Fr.: Puccinia heterospora.
- PSEUDELEPHANTOPUS SPICATUS (Juss.) Rohr.: Puccinia paupercula.
- PSITTACANTHUS CALYCVLATUS (DC.) G. Don: Aecidium loranthi.
- PTERIDIUM AQUILINUM (L.) Kühn: Uredinopsis macrosperma.
- PUCGINIA ABRUPTA Diet. & Holw., on Verbesina perymenioides, Guatemala: H 6, 200; on V. punctata, Jalapa: S 76702; on V. sp., Guatemala: K 5455. Occurs from the southern United States southward into South America.
- PUCGINIA ACNISTI Arth., on Acnistus arborescens, Jalapa: K 7686, S 76367, 77389. Uredia are not formed by this rust. The species has not been recorded previously for Guatemala although Kellerman's collection was made in 1908. Known also from Costa Rica and South America.
- PUCGINIA AEGOPOGONIS Arth. & Holw., on Aegopogon cenchroides, Chimaltenango: S 79807; Guatemala: H 54, 869; Huehuetenango: H 760; Quezaltenango: K 5572, 5932, 5948; Sacatepéquez: H 650; Solola: H 164; on A. tenellus, Guatemala: H 37; on Eupatorium ligustrinum, Alta Verapaz: S 70422; on E. mairietianum, Chimaltenango: J 1933; Huehuetenango: S 82431, 32930; Jalapa: S 77249; Quezaltenango: S 83231; Solola: H 113; on E. rafaellense, Chimaltenango: J 355, 1433, S 57880, 61557, 64373; Huehuetenango: S 65745; Sacatepéquez: J 859, S 63856; on E. sp., Guatemala: H 631, 868; Huehuetenango: H 754. Holway concluded, from field observations, that the aecia on Eupatorium and the telia on Aegopogon were alternate stages of a single species. The aecia are not distinguishable from those of Uromyces aegopogonis, whose telial stage has not been found in Guatemala. P. aegopogonis is known to occur also in Bolivia and Ecuador.

- PUCCINIA ALIA Jacks. & Holw., on Baccharis trinervis, Jalapa: S 77526. Otherwise known from Brazil where it occurs on the same host. Telia are not present in the above specimen. For a description see Jackson (30).
- PUCCINIA AMPHICSPORA (Jacks. & Holw.) Cumml., on Hyptis mutabilis, Chimaltenango: S 79744; Quezaltenango: S 87118; Retalhuleu: S 87753; Sacatepéquez: S 63851. Described and otherwise known only from Bolivia. This rust differs from P. hyptidis-mutabilis mainly in producing amphispores in addition to ordinary urediospores. For a description of the uredia see Jackson (30); for the telia see Cummins (12).
- PUCCINIA ANCIZARI see P. INTERJECTA.
- PUCCINIA ANDRPOGONIS Schw., on Andropogon condensatus, Solola: H 178. The aecial stage has not been collected in Guatemala but may occur on Castilleja or Lamoureauxia, which are hosts of the correlated microcyclic P. nesodes. Castilleja spp. are known aecial hosts in the United States.
- PUCCINIA ANGUSTATA Peck var. ANGUSTATOIDES (Stone) Arth., on Rynchospora polyphylla, Alta Verapaz: S 92665. This variety is often treated as a distinct species, P. angustatoides, but was reduced in rank by Arthur (6). The aecial stage is not known. Known from the southern United States southward into South America.
- PUCCINIA ANCDAE Syd., on Anoda cristata, Chimaltenango: S 79897; Guatemala: S 89451; Huehuetenango: S 82392; Jalapa: S 76639; on A. hastata, El Petén: Heyde & Lux (type). The species is microcyclic. Reported also from Costa Rica, Mexico, and South America.
- PUCCINIA ANTIRRHINI Diet. & Holw., on Antirrhinum majus, Chimaltenango: J. Not previously recorded for Guatemala but becoming generally distributed where snapdragons are grown.
- PUCCINIA ARECHAVALETAE Speg., on Cardiospermum coluteoides, Dept. uncertain: H 208; on C. corindum, Guatemala: J 1138; Jalapa: K 7838; on C. grandiflorum, Guatemala: S 61346; Jalapa: K 5461, S 77525; on Serjania atrolineata, Izabal: S 72501; on S. caracasana, Izabal: S 23868; on S. racemosa, Santa Rosa: S 78001; on S. sp., Izabal: K 5306; Santa Rosa: S 78874; on Urvillea ulmacea, Escuintla: S 89480. This microcyclic species is common in the tropics.
- PUCCINIA ARENARIICOLA see P. MODICA.
- PUCCINIA ARRACACHAE Lagerh. & Lindr., on Arracacia bracteata, Sacatepéquez: H 86, 558; Quezaltenango: S 84248; on A. rigida, Sacatepéquez: K 7232, S 65153. Recorded otherwise only for Ecuador. This rust was first reported for Guatemala by Arthur (3) but under the non-valid name, P. arracacharum.
- PUCCINIA ASTERIS Duby, on Aster bullatus, Alta Verapaz: S 90514; on Erigeron bonariensis, Guatemala: H 39; on E. deamii, Solola: H 112; on E. karvinskyanus, Guatemala: H 686; Sacatepéquez: S 81004; on E. spathulatus, Quezaltenango: S 83426, 83915, 86040; on E. sp., Huehuetenango: H 776. This species is microcyclic and common, especially northward.



PUCCINIA ATRA Diet. & Holw., on Valota insularis, Guatemala: H 205, K 5469. This rust is also known to parasitize other closely related genera. The aecial stage is not known. For a discussion of this species and for illustrations from type specimens see Cummins (19).

PUCCINIA BACCHARIDIS Diet. & Holw., on Baccharis glutinosa, Guatemala: H 91; Huehuetenango: S 82265; Sacatepéquez: S 64720; Solola: H 158; on B. sp., Chimaltenango: J 684, 742, 878. For keys to the species of Puccinia on Baccharis see Jackson (30).

PUCCINIA BACCHARIDIS-MULTIFLORAE Diet. & Holw., on Baccharis kellermanii, Solola: K 6307; on B. serraeifolia, Chimaltenango: S 79809; Huehuetenango: H 770; Sacatepéquez: S 60311, 63853; Solola: H 115, 123; on B. sp., Guatemala: H 687; Quezaltenango: H 731. Apically thickened urediospores characterize this species. Described and otherwise known from Mexico.

PUCCINIA BARTHOLOMAEI Diet., on Bouteloua filiformis, Guatemala: H 206. The aecial stage, which is on Asclepiadaceae, has not been found in Guatemala but may well occur since it has been collected in El Salvador. Common northward.

PUCCINIA BASIPORULA Jacks. & Holw., on Eupatorium mairoultianum, Quezaltenango: H 93 (type), 733, 808, 837, S 86096; Totonicapán: S 84012a; on E. phoenicolepis, Totonicapán: S 84136; on E. rafaellense, Quezaltenango: K 5416, 5449; San Marcos: S 66252. Known only from Guatemala. The urediospores have pores near the hilum.

PUCCINIA BERBERIDIS-TRIFOLIAE Diet. & Holw., on Berberis fascicularis, Huehuetenango: J 1690, S 81819. Otherwise known only from the type collected near Mexico City. The species is microcyclic.

PUCCINIA EOMAREAE (Lagerh.) P. Henn. This species was recorded by Arthur (5) but there is no specimen in the Arthur Herbarium and the record is marked out with pencil in the laboratory copy of the N. Am. Flora. The rust was probably found to be P. pallor.

PUCCINIA CALEAE Arth., on Calea zacatechichi, Chimaltenango: J 685, 776, S 57935; Guatemala: H 7, 89; Quezaltenango: S 84892, 87073; Sacatepéquez: H 643, S 61689, 63352, 64630; Solola: H 132; on C. sp., Solola: H 675. Known from Mexico and Central and South America.

PUCCINIA CANALICULATA (Schw.) Lagerh., on Cyperus meyenianus, Chimaltenango: S 79761; on C. sp., Izabal: H 598. The aecial stage occurs on Ambrosia and Xanthium but is unknown in the southern range of the species. Occurs in the United States and southward to northern South America.

PUCCINIA CANNAE (Wint.) P. Henn., on Canna indica, Escuintla: S 64024; Suchitepéquez: K 5357, 5386; Solola: J 88; on C. sp., Suchitepéquez: H 516. Known from Florida southward into South America.

PUCCINIA CARICIS-POLYSTACHYAE Diet., on Carex polystachya, Guatemala: H 55, 611; Huehuetenango: S 81520; Jalapa: S 76488; Sacatepéquez: K 7197 (type of P. kellermanii Kern); Solola:



- H 124. Presumably this species is heteroecious but the aecial stage is unknown. Known otherwise from Mexico.
- PUCCINIA CENCHRI Diet. & Holw., on Cenchrus echinatus, Guatemala: H 591; on C. pilosus, Zacapa: S 74593; on C. viridis, Izabal: H 597. The aecial stage is unknown. Occurs from the United States southward into South America.
- PUCCINIA CHASEANA Arth. & Fromme, on Anthesphora hermaphrodita, Izabal: H 600. This species appears not to have been collected elsewhere in continental North America. Reported also from the West Indies and Colombia. The aecial stage is unknown.
- PUCCINIA CIRCINATA (Schw.) Arth., on Stigmaphyllon sp., Guatemala: K 5397; Zacapa: K 5457. The host was determined by Greenman as near S. tomentosum. The rust was first described from Surinam and appears not to have been reported for other countries.
- PUCCINIA CIRCULDATA Mains, on Panicum fasciculatum, Zacapa: S 74571. The aecial stage is unknown and to date the only known grass host is P. fasciculatum. For a description see Mains (36), for further discussion and an illustration from the type collection see Cummins (19).
- PUCCINIA CIRSII Lasch, on Cirsium mexicanum, Guatemala: S 58483; Sacatepéquez: S 63645, 64733; on C. subcoriaceum, Chimaltenango: S 80244; on C. sp., Huehuetenango: J 1925. Widely distributed.
- PUCCINIA CLADII Ellis & Tr., on Rynchospora robusta, Alta Verapaz: S 92800. This rust occurs northward to the United States. The aecial stage is unknown.
- PUCCINIA COGNATA Syd., on Verbesina fraseri, Guatemala: H 464, 604, K 4324, 5369, 5412; Sacatepéquez: H 73, S 63041, 81015; on V. holwayi, Quezaltenango: H 96B, 738; on V. punctata, Sacatepéquez: S 63865; on V. sublobata, Quezaltenango: S 84310a; Solola: H 175a, 180; on V. turbacensis, Quezaltenango: S 83189, 83927, 85774; on V. sp., Chimaltenango: J 256; Guatemala: K; Suchitepéquez: H 523; Solola: H 135, 177, K 6306. Reported from the southern United States to Venezuela.
- PUCCINIA COMMELINAE Holw., on Commelina elegans, Chimaltenango: J 851; Jutiapa: S 74905; Retalhuleu: S 88762; Sacatepéquez: J 60. Otherwise known to occur in Mexico and perhaps Grenada. Phakopsora tecta occurs on the same host in Guatemala.
- PUCCINIA CONOCLINII Symb., on Ageratum conyzoides, Alta Verapaz: S 90150; Retalhuleu: H 697, K 5446; Suchitepéquez: K 4346, 5373; on A. corymbosum var. latifolium, Guatemala: H 482, 623; Sacatepéquez: S 64276; on A. rugosum, Sacatepéquez: H 74; on A. tomentosum, Chimaltenango: J 1442; S 79849; Sacatepéquez: S 61755; on Eupatorium collinum, Guatemala: H 627, K 5318; Huehuetenango: H 757; on E. glandulosum, Quezaltenango: H 810; on E. neaeum, Solola: H 131; on E. oresbioides, San Marcos: S 66315; on E. pycnocephaloides, Huehuetenango: H 774; Quezaltenango: H 750, S 84325; Sacatepéquez: H 83, 564; Solola: H 144; Totonicapán: H 106; on E. pycnocephalum, Guatemala: K 5312, 5350, 5354; Retalhuleu: H 713; Quezaltenango: S 83783, 85029; Sacatepéquez: H 549,

- S 64283; Solola: H 153; on E. sp., Chimaltenango: S 80021; Guatemala: H 629, K 6297; Quezaltenango: H 801; Retalhuleu: H 717; on Piqueria standleyi, Jutiapa: S 75496. This is a common species. The specimen on Piqueria was reported with an illustration by Cummins (20), and is the only record for this genus.
- PUCCINIA CORDIAE (P. Henn.) Arth., on Cordia alliodora, Escuintla: H 503, 508; Santa Rosa: S 77706. Known also from Costa Rica, Puerto Rico, and South America. For recent notes on this species see Mains' (41) discussion following the description of P. ciliata.
- PUCCINIA CORNUTA Jacks. & Holw., on Citropappus curviflorus, Guatemala: H 846 (type), 493; Sacatepéquez: S 64634. The host of the Holway collections was originally reported as Notoptera brevipes but was examined in 1940 by Standley, who identified it as C. curviflorus. Except for an aecial collection from British Honduras the species is known only from Guatemala. Uredia are not formed.
- PUCCINIA CORONATA Corda, on Avena sativa, Chimaltenango: J 1701, S 79742, 79747. Common where oats are grown.
- PUCCINIA CRASSIPES B. & C., on Iporosa glabriuscula, Guatemala: H 472; Santa Rosa H 856; on I. tillasea, Guatemala: H 11, 201; on I. trifida, Guatemala: K 5390, 5407; Jutiapa: S 75043; Quezaltenango: S 84788, 87099; Retalhuleu: S 88609; on I. triloba, Jutiapa: S 75882; on I. sp., Guatemala: K 5356, 5406; Quezaltenango: S 67958. Uredia are not formed. Occurs from the southern United States southward to Argentina.
- PUCCINIA CUILLAPENSIS Cum., on Salvia gracilis, Quezaltenango: S 85744, 85830; on S. mocinoi, Santa Rosa: S 78545 (type); on S. sp., Santa Rosa: S 78008. This species is known only from the above collections. For a description and illustration see Cummins (20).
- PUCCINIA CUPHEAE Holw., on Cuphea aequisetula, Chimaltenango: S 60020; Sacatepéquez: J 392; on C. appendiculata, Alta Verapaz: S 69355; Quezaltenango: S 84851; on C. exilliflora, Alta Verapaz: S 92749. The species is microcyclic. See also P. jaliscensis which has been reinstated as a valid species.
- PUCCINIA CYANI (Schleich.) Pass., on Centaurus cyanus, Chimaltenango: J 1907; S 83893. Not previously reported for Guatemala. Widely distributed.
- PUCCINIA CYNODONTIS Lacroix, on Cynodon dactylon, Chimaltenango: J 1698; Guatemala: H 692, 305; Izabal: H 599. The aecial stage is unknown. Widely distributed in the warmer regions of the world.
- PUCCINIA CYPERI Arth., on Cyperus ferax, Chimaltenango: J 845; on C. hermaphroditus, Chimaltenango: J, S 80226; Guatemala: H 136A; on C. incompletus, Sacatepéquez: J 62, 63; on Kyllinga pumila, Alta Verapaz: S 70131; on K. odorata, Solola: H 663. Telia have not been collected on Kyllinga and the rust on that genus is sometimes kept separate as Uredo kyllingae. The aecial stage (Aecidium erigerontis Kern & Whetzel) of the



- Cyperus rust occurs on Erigeron but is not known from Guatemala. The walls of the aeciospores are thickened apically. Occurs from the United States into South America.
- PUCCINIA DEFORMATA B. & C., on Olyra latifolia, El Petén: Lundell 3610. First reported for Guatemala by Mains (36). Known also from Nicaragua, the West Indies, and South America.
- PUCCINIA DEGENER Mains & Holw., on Salvia albiflora, Quezaltenango: H 838 (type); on S. myriantha, Quezaltenango: S 83614, 85954; on S. sp., San Marcos: S 66185. The species was originally described from the uredial stage. For a description of the other spore-forms and a photograph of a teliospore see Cummins (20). Known only from the above collections.
- PUCCINIA DELICATULA (Arth.) Sacc. & Trott., on Salvia cinnabarina, Chimaltenango: J 239, S 79960; Huehuetenango: H 769; Quezaltenango: H 751, 811, S 83964; El Quiché: J 1448; San Marcos: S 85364; on S. elegans, Solola: H 140; on S. holwayi, Quezaltenango: H 743, 789, on S. pulchella, Guatemala: H 41. Otherwise known from Mexico. P. niveoides is a closely related species. Both are microcyclic.
- PUCCINIA DEPALLENS see PRCSPODIUM DEPALLENS.
- PUCCINIA DETONSA Arth. & Holw., on Stellaria ovata, Quezaltenango: H 824. Known otherwise from Costa Rica on the same host. The species is microcyclic.
- PUCCINIA DICHONDRAE Mont., on Dichondra sericea, Guatemala: H 50. This species is microcyclic. Widely distributed.
- PUCCINIA DICHROMENAE (Arth.) Jacks., on Dichromena ciliata, Alta Verapaz: S 90045, 92238; on D. radicans, Alta Verapaz: S 69176, 70128. The aecial stage is unknown. Known from Central and South America and the West Indies.
- PUCCINIA DISCRETA Jacks. & Holw., on Vernonia deppeana, Baja Verapaz: K 7026; Chimaltenango: J 348; Quezaltenango: H 818; Retalhuleu: H 721. Known also from Costa Rica and Peru. The species is microcyclic.
- PUCCINIA DOCHMIA B. & C., on Muhlenbergia ciliata, Guatemala: H 53; on M. quitensis, Sacatepéquez: K 7196, 7199. The aecial stage is unknown. Known also from Costa Rica and Nicaragua.
- PUCCINIA DOLCISA Arth. & Fromme, on Paspalum paniculatum, Retalhuleu: S 87244; on P. sp., Chimaltenango: J 1696. Not previously reported for Guatemala. The species was long treated as a synonym of P. substriata. No aecial stage is known. For a description, discussion and illustration see Cummins (19).
- PUCCINIA DYSCHORISTES Cumms., on Dyschoriste quadrangularis, Jutiapa: S 76263 (type). Known only from the above collection. For a description and illustration see Cummins (20).
- PUCCINIA ELATIPES see PRCSPODIUM ELATIPES.
- PUCCINIA ELECTRAE Diet. & Holw. on Coreopsis mutica, Guatemala: H 5, 52 (type of P. coreopsidis Jacks. & Holw.), 613; Quezaltenango: H 725B, S 83209, 83962; Sacatepéquez: S 58898a, 61688, 80976; Solola: H 154. Known otherwise from Mexico.



- PUCCINIA ELYTRARIAE P. Henn., on Elytraria imbricata, Santa Rosa: S 78024; on E. sp., Guatemala: H 635. The species is microcyclic. Known from Mexico into South America and reported from Japan.
- PUCCINIA EMILIAE P. Henn., on Neurolaena lobata, Izabal; K 6316. This collection was reported by Davidson (21). The species is microcyclic. Known from Florida southward to South America.
- PUCCINIA ENGELIAE Diet. & Holw., on Simsia foetida, Chimaltenango: J 359; Sacatepéquez: S 63042, 64732; on S. holwayi, Santa Rosa: H 854; on S. lagascaeformis, Sacatepéquez: J 384, 387; on S. polycephala, Guatemala: H 624; Jutiapa: S 75053, 77571; on S. sericea, Guatemala: H 63; Sacatepéquez: H 79, 548. Known from southern California to Chile.
- PUCCINIA EPIPHYLLA see PUCCINIA POAE-SUDETICAE.
- PUCCINIA ERRATICA Jacks. & Holw., on Vernonia schiedeana, Guatemala: H 480, 494, 621, 841. Known also from British Honduras and Mexico.
- PUCCINIA EUPHORBIAE var. LONGIPES Syd., on Euphorbia caracasana, Chimaltenango: J 774; Guatemala: H 3; Quezaltenango: H 740; Sacatepéquez: H 66, 641, J 55; on E. cotinifolia, Chimaltenango: S 79976; Jalapa: S 76721; Quezaltenango: S 83921; Solola: K 5433; Dept. unknown: Rojas 42. Known otherwise from Mexico.
- PUCCINIA EXILIS Syd., on Pavonia rosea, Izabal: H 593. Known also from South America. The species is microcyclic.
- PUCCINIA EXIMIA Arth. & Holw., on Galium mexicanum, Escuintla: S 61316; Sacatepéquez: H 81, 542, K 7098, S 63750; on G. sp., Quezaltenango: H 735 (type), 809; Sacatepéquez: H 645. Known only from Guatemala.
- PUCCINIA EXORNATA Arth., on Baccharis rhexioides, Chimaltenango: J 842; Guatemala: H 462, 863, K 5470; Sacatepéquez: J 66; Solola: H 174; on B. thesioides, Guatemala: K 5368 (type); on B. trinervis, Alta Verapaz: S 69531; Sacatepéquez: S 59827, 60340. For keys to the species of Puccinia on Baccharis see Jackson (30). Known from Mexico, Central America, and Brazil.
- PUCCINIA FARINACEA Long, on Salvia amarissima, Sacatepéquez: H 547; on S. elegans, Quezaltenango: H 780; Solola: H 140a; on S. holwayi, Quezaltenango: H 741, S 83198, 83951, 85262; Totonicapán: S 83973, 84131; on S. kellermani, Quezaltenango: S 87091; on S. lavanduloides, Chimaltenango: S 79726; Sacatepéquez: H 654; Solola: H 165; Totonicapán: S 84138; on S. lindenii, Quezaltenango: H 833; Sacatepéquez: H 88, 580; on S. nepetoides, Quezaltenango: H 94; on S. patens, Quezaltenango: J 1761; on S. riparia, Chimaltenango: S 79739; on S. sp., Guatemala: K 5471, 5472; Huehuetenango: H 773, 777; Quezaltenango: J 521. Occurs northward to Nebraska.
- PUCCINIA FEROX Diet. & Holw., on Verbesina punctata, Quezaltenango: S 68099 bis; on V. turbacensis, Alta Verapaz: S 69056. Not previously recorded for Guatemala. Known also from Costa Rica, Mexico, and South America. The species is microcyclic.
- PUCCINIA FIDELIS Arth., on Hyptis lilacina, Guatemala: H 27a, K 5334; on H. oblongifolia, Santa Rosa: S 77956; on H. pectinata,

- Chimaltenango: S 79864, 80215; Quezaltenango: S 83913; Solola: H 136; on H. urticoides, Chimaltenango: J 160; Guatemala: K 5380, 5401; Sacatepéquez: S 63864, 64938. Known otherwise from Mexico.
- PUCCINIA FILIOLA Mains & Holw., on Salvia involucrata, Solola: H 156 (type); on S. nervata, Huehuetenango: J 1931; Quezaltenango: S 85806; on S. pulchella, Guatemala: H 19a, 41a; Totonicapán: H 107; on S. sp., Quezaltenango: S 66326; Sacatepéquez: H 579. Recorded for Guatemala and South America, the latter an uredial collection.
- PUCCINIA FILOPES Arth. & Holw. on Buettneria lateralis, Escuintla: H 501 (type). Known also from Costa Rica, Panamá, and Colombia. The species is microcyclic.
- PUCCINIA FLAVO-VIRENS Jacks. & Holw., on Cyperus ferax, Chimaltenango: S 79826; on C. sp., Sacatepéquez: S 60297. First reported for North America by Cummins (15), based on Standley 60297. Otherwise known from Ecuador and Mexico. For a description see Jackson (25).
- PUCCINIA FUCHSIAE Syd. & Holw., on Fuchsia chiapensis, San Marcos: S 66286; on F. microphylla, Quezaltenango: H 753; on Lopezia hirsuta, Chimaltenango: J 53; Guatemala: H 34; Sacatepéquez: H 647. The species is microcyclic. Known from Mexico to Panama.
- PUCCINIA FUIRENAE Cooke, on Fuirena incompleta, Huehuetenango: S 82958. This record was published by Cummins (20).
- PUCCINIA FUMOSA Holw., on Loeselia ciliata, Guatemala: H 636; Jutiapa: S 76303; on L. glandulosa, Chimaltenango: J, S 79782, 79859; Jalapa: S 77539; Quezaltenango: S 83881; Sacatepéquez: K 5464, S 60896; Solola: H 184. Known also from Costa Rica, El Salvador, and Mexico.
- PUCCINIA FUSCATA Arth. & Holw., on Cunila leucantha, Quezaltenango: H 742, 785 (type); on C. polyantha, Quezaltenango: S 83779; Solola: H 166. Known only from Guatemala.
- PUCCINIA GILVA Arth. & Holw., on Heliotropium physocalycinum, Guatemala: H 626; Sacatepéquez: H 658 (type), S 64278; on H. rufipilum, Jutiapa: S 78485. Known only from Guatemala.
- PUCCINIA GNAPHALII (Speg.) P. Henn., on Gnaphalium rhodanthum, Sacatepéquez: H 578. Occurs from the southern United States into South America.
- PUCCINIA GOUANIAE Holw., on Gouania lupuloides, Escuintla: H 500; Retalhuleu: S 88387; on G. polygama, Jutiapa: S 78472; Retalhuleu: S 88354; Santa Rosa: S 77847, 79409. Known from Central and South America and the West Indies.
- PUCCINIA GRAMINIS Pers., on Triticum aestivum, Chimaltenango: J. Not previously reported for Guatemala but probably common as it is elsewhere throughout the world.
- PUCCINIA GYMNOLOMIAE Arth., on Hymenostephium cordatum, Quezaltenango: H 828; Retalhuleu: H 692; on H. microcephalum, Guatemala: H 861; Sacatepéquez: H 556; J 71; on H. sp., Sacatepéquez: H 652. Johnston's collection is an Aecidium, which probably represents the aecial stage of this species. The aecia occur



in rather loose groups on discolored spots; the spores measure 15-18 x 18-22  $\mu$  and have a hyaline, finely verrucose wall 1  $\mu$  in thickness. Known also from Costa Rica and Mexico.

PUCCINIA HACKELIAE Cumm., on Hackelia mexicana, Dept. uncertain: J (type). Known only from the type. For a description see Cummins (15).

PUCCINIA HELIANTHI Schw., on Helianthus annuus, Chimaltenango: S 74831. Not previously reported from Guatemala. Widely distributed.

PUCCINIA HELICONIAE (Diet.) Arth., on Heliconia sp., Dept. unknown: K; Retalhuleu: S 88740; Santa Rosa: S 60666. The species has also been intercepted in Customs inspection. Not previously recorded for Guatemala. Known from Central and South America and the West Indies.

PUCCINIA HELIOTROPII Kern & Kellerm., on Heliotropium indicum, Guatemala: H 468; Zacapa: K 4326 (type), 5422, 5426. Long known only from Guatemala but recently recorded for British Honduras, Colombia, and Venezuela. The species is microcyclic.

PUCCINIA HENRYAE Cumm., on Henrya imbricans, Guatemala: K 5390 (type). Known only from the type. For a description and illustration see Cummins (18).

PUCCINIA HETEROSPERA B. & C., on Abutilon giganteum, Chimaltenango: S 79772, 79992; Sacatepéquez: J 911; on A. sp., Sacatepéquez: J 852, 866; Quezaltenango: H 797, 798; on Anoda cristata, Chimaltenango: J 54, 326; Jutiapa: S 75944; Sacatepéquez: S 58052, 60877; Santa Rosa: S 78653; on Gaya calyptrata, Jutiapa: S 74995, 75776, 76051; on Malva sylvestris, Chimaltenango: S 79882; on Malvaviscus arboreus, Chimaltenango: S 30251; Retalhuleu: H 694; Suchitepéquez: H 529; on M. sp., Guatemala: H 485; on Neobrittonia acerifolia (Abutilon discissum), Chimaltenango: J 1685; Quezaltenango: H 782, S 83311; on Pavonia spicata, Izabal: S 72158; on Pseudabutilon spicatum, Santa Rosa: S 79140, 79252, 79692; on Sida ciliaris, Jutiapa: S 75039; on S. cordifolia, Guatemala: H 474; Jalapa: K 7056; Zacapa: K 4323; on S. sp., Zacapa: K 5421; on Wissadula amplissima, Jutiapa: S 74841; on W. perilocifolia, Jutiapa: S 75962. A widely distributed microcyclic species.

PUCCINIA HIASCENS Arth., on Clethra lanata, Chimaltenango: J 1462; on Saurauia konzattii, Guatemala: H 90, 608; on S. costaricensis, Retalhuleu: S 87198; on S. pauciserrata, Huehuetenango: H 775; on S. smithiana, Quezaltenango: H 819, 830 (type); on S. sp., Guatemala: H 844. The status of the above collections is most uncertain. Holway's collections were mainly identified by Buscalioni in 1917 as on various species of Saurauia and his determinations were verified in part by Standley in 1935. However, Standley identified the host of Johnston's collection as Clethra lanata and commented on Holway's nos. 90, 608, and 844 as follows: "We have no Saurauia like them, and so far as I can see, they might just as well represent Clethra". The rust on all is alike and I am listing the collections as P. hiascens, although this may prove to be incorrect. The species is microcyclic. Known also from Mexico.



- PUCCINIA HIERACII (Schum.) Mart., on Hieracium abscissum, Quezaltenango: S 83409; on H. sp., Sacatepéquez: H 577, 648. The species is widely distributed.
- PUCCINIA HOGSONIANA Kern, on Eupatorium phoenicolenis Rob., Huehuetenango: S 81267; on E. phoenicolenis var. guatemalensis, Guatemala: K 5382, 5431, 5439, 6087 (type), El Quiché, J 1459; on E. schultzei var. erythranthodium, Santa Rosa: H 853; on E. schultzei var. ophryolepis, Quezaltenango: H 744, 804; Solola: H 187; on E. schultzei var. velutipes, Guatemala: H 587; Solola: H 170; on E. sp., Huehuetenango: J 1926, 1927; Solola: K 5414. Reported from Guatemala and Costa Rica. The pores in the urediospores are near the hilum.
- PUCCINIA HYDROCOTYLES (Link) Cooke, on Hydrocotyle bonariensis, Solola: H 190; on H. mexicana, Alta Verapaz: S 69300, 70920; Baja Verapaz: S 90988; Quezaltenango: S 84276; Solola: H 189; on H. umbellata, Chimaltenango: S 79996; Guatemala: J 1431, K 5367, 5398, S 61331, 89460. Common in the uredial stage. Widely distributed.
- PUCCINIA HYPTIDIS Tr. & Earle, on Hyptis pectinata, Guatemala: K Occurs from the southern United States southward into South America.
- PUCCINIA HYPTIDIS-MUTABILIS Mayor, on Hyptis mutabilis, Chimaltenango: J. Puccinia amphiospora is a closely related species which forms amphispores. Known also from Florida, Costa Rica, and South America.
- PUCCINIA IDONEA Jacks. & Holw., on Vernonia heydeana, Sacatepéquez: S 64934; on V. triflosculosa, Escuintla: H 498, 499 (type); Guatemala: H 481; Solola: H 670. Known otherwise from Costa Rica and El Salvador.
- PUCCINIA IMPEDITA Mains & Holw., on Salvia hispanica, Huehuetenango: S 81197; on S. occidentalis, Retalhuleu: H 712; Sacatepéquez: H 642; Santa Rosa: S 78074; on S. tiliaefolia, Chimaltenango: S 79755; Jalapa: S 76494, 77419; Quezaltenango: S 83200, 83938, 84640; Sacatepéquez: S 61714, 64286. Known from Mexico, Central and South America, and the West Indies.
- PUCCINIA INAEQUATA Jacks. & Holw., on Vernonia aschenborniana, Retalhuleu: S 87771; on V. patens, Baja Verapaz: K; Escuintla: H 502 (type); Guatemala: H 470; Huehuetenango: S 82823; Izabal: S 72426; Jalapa: K 5337; Retalhuleu: H 534; Santa Rosa: H 851, Heyde & Lux; Suchitepéquez: H 513. Known otherwise from Brazil and Ecuador.
- PUCCINIA INAUDITA Jacks. & Holw., on Wedelia scapulcensis, Chimaltenango: J 1928, S 79966; on W. filipes, Jalapa: S 77531; on Zexmenia elegans, Retalhuleu: S 66727; on Z. leucactis, Escuintla: H 505; Quezaltenango: H 823; Retalhuleu: H 693 (type); on Z. longipes, Guatemala: H 628. Known otherwise only from Honduras.
- PUCCINIA INCONDITA Arth., on Solanum salviifolium, Alta Verapaz: S 89755; on S. sp., Quezaltenango: S 65336. First reported for Guatemala by Cummins (15), based on Standley's no. 65336. Otherwise known only from Texas. For a recent review of the microcyclic species of Puccinia on Solanum see Kern (33).

PUCCINIA INFREQUENS Holw., on Salvia cinnabarina, Guatemala: H 19B, K 4623; Huehuetenango: H 768, S 31321; Quezaltenango: H 99, 727, 751a, S 83574, 84367; Sacatepéquez: H 78, 546, 552; Solola: K 5438; Totonicapán: S 84078; on S. urica, Chimaltenango: S 79779; Huehuetenango: S 81588; Quezaltenango: S 83575, 83949, 85247; Sacatepéquez: J 77, S 63710. Known otherwise from the type collected at Oaxaca, Mexico, on S. cinnabarina. For a description of the aecial stage see Cummins (15).

PUCCINIA INFUSCANS Arth. & Holw.; on Andropogon saccharoides, Chimaltenango: J 1694; Guatemala: H 15 (type). This rust was originally described as on Imperata brasiliensis but the host was identified, together with that of Johnston's collection, as Andropogon saccharoides by Swallen in 1941. There is also a specimen in the Arthur Herbarium from Mexico on A. emersus.

PUCCINIA INSULANA (Arth.) Jacks., on Vernonia sp., Retalhuleu: H 537. Previously known from the West Indies but this appears to be the only record for continental America.

PUCCINIA INTERJECTA Jacks., on Baccharis heterophylla, Huehuetenango: S 82273, 82425; Totonicapán: S 84112; on B. lancifolia, Chimaltenango: H 660; Quezaltenango: H 103 (type); on B. vaccinioides, El Quiché: J 1460. In the North American Flora this rust was called P. ancizari. For the change of name and for keys to the species of Puccinia on Baccharis see Jackson (30). Known only from Guatemala.

PUCCINIA INVAGINATA Arth. & Johnst.; on Gouania lupuloides, Escuintla: H 497; on G. sp., Guatemala: H 614, 618, K 6364; Suchitepéquez: H 518. Easily separable from P. gouaniae because of the reniform urediospores. Known also from the West Indies and South America.

PUCCINIA INVESTITA Schw., on Gnaphalium attenuatum, Chimaltenango: J 158, S 61530; on G. leptophyllum, Chimaltenango: J 173, 746; G. oxyphyllum, Quezaltenango: S 84184; on G. sp., Guatemala: H 610; Sacatepéquez: H 655. The species does not form uredia. Occurs from the southern United States into South America.

PUCCINIA IRREGULARIS Diet., on Verbesina steyermarkii, Santa Rosa: S 77954; on V. sp., Jalapa: K. First reported for Guatemala by Davidson (21) based on Kellerman's collection. Apparently an infrequent species, otherwise known from Nicaragua and South America.

PUCCINIA JALISCENSIS Holw., on Cuphea hookeriana, Chimaltenango: J 844, 1924; Sacatepéquez: J 880; Solola: H 133. This microcyclic species was given as a synonym of P. cupheae by Arthur (5) but appears to be quite distinct. The sori are small, separate and more or less aecidioid in appearance and the spores are larger, usually tapered apically and less deeply pigmented than is true of P. cupheae. Holway (24) published photographs of both species. Described and otherwise known from Mexico.

PUCCINIA KUHNIAE Schw., on Brickellia scoparia, Huehuetenango: J 1761. This is the first collection for Guatemala. Known also from the United States, Mexico, and Venezuela.



PUCCINIA LANTANAE Farl., on Lantana involucrata, Jalapa: S 76615; Jutiapa: S 74921. Apparently these collections are the first record of this common microcyclic rust in Guatemala.

PUCCINIA LATERITIA B. & C., on Borreria laevis, Chimaltenango: S 30002; Quezaltenango: S 84867, 87119; Sacatepéquez: S 64280; on B. ocymoides, Jalapa: S 77521; Sacatepéquez: J 320, S 52036; on B. suaveolens, Chimaltenango: S 80959; Solola: J 83; on B. verticillata, Sacatepéquez: S 53596, 60241; on B. sp., Solola: J 87; on Crusea calocephala, Guatemala: H 684; on Diodia sermentosa, Alta Verapaz: S 91694; on Diodia teres, Jalapa: S 76634; Jutiapa: S 75089; Zacapa: S 74762; on Diodia sp., Izabal: K 4617; on Spermacoce podocephala, Solola: H 139, 662. Common in the warmer regions of North and South America and known from Africa. The species is microcyclic.

PUCCINIA LAURIFOLIAE Davidson, on Heteropteris laurifolia, Guatemala: K (type). For a description and illustration see Davidson (21). The species is distinct from P. picturata Jacks. & Holw. Known only from the type.

PUCCINIA LEVIS (Sacc. & Bizz.) Magn., on Paspalum humboldtianum, Guatemala: H 864; Solola: H 129; on Tricholena rosea, Chimaltenango: S 79766, 79909; Jalapa: S 76809; Sacatepéquez: J 65, S 63848. The aecial stage is unknown. Widely distributed in the Americas and perhaps elsewhere.

PUCCINIA LIBERTA Kern, on Eleocharis geniculata, Quezaltenango: K 5419; on E. sp., Guatemala: J 1430. For a photograph of teliospores of the type specimen collected in Nicaragua see Cummins (9). Occurs from California to Venezuela. The aecial stage is unknown.

PUCCINIA LITHOSPERMI Ellis & Kellerm., on Evolvulus alsinoides, Zacapa: S 74764; on E. nummularius, Retalhuleu: S 88053. Not recorded for Guatemala previously. Widely distributed.

PUCCINIA MACRA Arth. & Holw., on Paspalum candidum, Solola: H 168 (type). Known also from Costa Rica and South America. For a review of this and related species and for a photograph of teliospores of the type see Cummins (19).

PUCCINIA MALVACEARUM Bert., on Sida spinosa, Guatemala: H 488. A common microcyclic species.

PUCCINIA MARSDENIAE Diet. & Holw., on Marsdenia mexicana, Guatemala: K; Solola: H 171, 677. Known otherwise only from the type collected in Mexico on the same host.

PUCCINIA MEDELLINENSIS Mayor, on Hyptis brevipes, Izabal: S 72115; on H. capitata, Izabal: K 5309; on H. pectinata, Guatemala: H 465, K 5310; Quezaltenango: H 795; Sacatepéquez: H 68; on H. polystachya, Guatemala: K 4327, 5311, 5443; on H. suaveolens, Jutiapa: S 75103. Known from Central and South America and the West Indies.

PUCCINIA MELAMPODII Diet. & Holw., on Melampodium divaricatum, Escuintla: Donnell-Smith; Izabal: K 5338; Jutiapa: S 74836; Suchitepéquez: H 515; on M. longifolium, Sacatepéquez: J 387a; on Synedrella nodiflora, Jutiapa: S 75029; Sacatepéquez: J 1923a. The species is microcyclic. Generally distributed from Texas southward into South America.



- PUCCINIA MELANTHERAE P. Henn., on Melanthera nivea, Sacatepéquez: H 69, S 64673. Apparently an infrequent species and difficult to distinguish, in the aecial and uredial stages, from Uromyces columbianus. The aecial stage, which has not been described before, is present in the Holway collection, along with uredia and telia, and is as follows: pycnia epiphyllous, few, 80-125  $\mu$  diam.; aecia hypophyllous, few in groups on dark spots, bullate, apparently without peridia; aeciospores globoid or broadly ellipsoid, 18-24 x 20-26  $\mu$ ; wall 1.5-2  $\mu$ , very pale yellowish, moderately verrucose with the warts tending to unite in irregular patterns.
- PUCCINIA MENTHAE Pers., on Micromeria brownei, Huehuetenango: S 81346, 82415; El Quiché: J 1450. This is the first report of the species for Guatemala. Widely distributed.
- PUCCINIA MITRATA Syd., on Salvia compacta, Quezaltenango: S 83239, 83808, 83942, 85750; on S. polystachya, Quezaltenango: H 95; Solola: H 120; on S. purpurea, Alta Verapaz: S 69550, 89998, 90053, 91468; Chimaltenango: J 870, S 79758, 81059; Quezaltenango: S 67115, 67253; Sacatepéquez: J 70; Solola: H 186; on S. sp., Quezaltenango: H 724, 825. Reported from Mexico, Costa Rica, and Bolivia.
- PUCCINIA MODICA Holw., on Arenaria alsinoides, Sacatepéquez: H 561; on A. lanuginosa, Solola: H 111. Described from Mexico and also reported for South America. Jackson (26), reduced this name to synonymy under P. arenariicola (P. Henn.) Jacks., a name which is non-valid because applied to a Carex rust by Plowright in 1889.
- PUCCINIA NESODES Arth. & Holw., on Castilleja communis, Sacatepéquez: H 551, S 59836; Solola: H 673; on C. tenuiflora, Sacatepéquez: H 653; Solola: H 125; on C. sp., Solola: H 669; on Lamoureauxia viscosa, Sacatepéquez: S 58598, 60289. This species is microcyclic. Described and otherwise known only from Costa Rica.
- PUCCINIA NIVEOIDES Cum., on Salvia cinnabarina, Guatemala: S 59243 (type); Sacatepéquez: J 218. Known only from the above collections. For a description see Cummins (15). The species is microcyclic and similar to P. delicatula.
- PUCCINIA NOCCAE Arth., on Lagascea helianthifolia var. suaveolens, Chimaltenango: S 79729a; Guatemala: H 12a, 463, K 5377, 5453; Huehuetenango: S 83026; Jalapa: S 77364; Sacatepéquez: K 5361, S 63324; Solola: H 155. Known also from El Salvador, Mexico, and South America.
- PUCCINIA NCTHA Jacks. & Holw., on Vernonia leiocarpa, Guatemala: H 21, 495, 585a; Huehuetenango: H 759; Quezaltenango: H 732; Sacatepéquez: H 550; Solola: H 143 (type); Totonicapán: S 84049; on V. shannoni, Quezaltenango: H 814, S 84227; on V. standleyi, Jutiapa: S 74896; Santa Rosa: S 78357. Reported otherwise from Socorro Island in the Pacific.
- PUCCINIA NOTICOLOR Holw., on Ipomoea fistulosa, Guatemala: H 40; on I. morelii, Quezaltenango: S 86782; on I. murucoides, Jalapa: S 76395; on I. parasitica, Zacapa: S 74611. Known otherwise from El Salvador and Mexico. Uredia are not formed.

- PUCCINIA CAXACANA Diet. & Holw., on Archibaccharis asperifolia, Guatemala: H 32, 46; on A. torquis, Quezaltenango: H 826. Known also from Costa Rica and Mexico.
- PUCCINIA OBESISPCRA Arth., on Alternanthera philoxeroides, Alta Verapaz: von Tuerckheim (type of Uredo nitidula Arth.); on A. obovata, Alta Verapaz: S 69416, 71552. All three specimens are from Cobán. Known otherwise from the type collected in Mexico.
- PUCCINIA OBLATA Mains, on Otopappus curviflorus, Izabal: Deam 89A (type). This species differs from P. cornuta in having white aecia, aeciospores with uniform walls, uredia in the life cycle and different habit. For a description see Mains (41). Known also from British Honduras.
- PUCCINIA CBLIQUA B. & C., on Funastrum crassifolium, Guatemala: H 197, 198, K 4348, 5437; on Metastelma pedunculare, Jutiapa: S 75625; on Vincetoxicum sp., Chimaltenango: S 79847, 79854, 80220; Guatemala: H 45; Suchitepéquez: H 519; Solola: H 192; on undet. Asclepiadaceae, Chimaltenango: J 1686, 1792. This microcyclic species often causes distortion of the host.
- PUCCINIA CBSCURATA Arth. & Holw., on Neonelsonia ovata, Chimaltenango: S 61809; Dept. unknown: K; Sacatepéquez: H 555 (type). Although not so described the teliospores are commonly diorchidioid. Known only from Guatemala. As Sydow (44) pointed out, Jackson's (29) Ecuadorian record represents an error in identification. For a description of the aecial stage see Cummins (15).
- PUCCINIA OBTECTELLA Cum., on Scirpus americanus, Guatemala: S 61342 (type). Known only from the type. For a description see Cummins (15).
- PUCCINIA ORDINATA Jacks. & Holw., on Calea insignis, Quezaltenango: H 817 (type); on C. integrifolia, Chimaltenango: S 80263; Quezaltenango: H 790; El Quiché: J 1454; San Marcos: S 66225; Solola: H 145. Reported only for Guatemala. The species is microcyclic.
- PUCCINIA OXALIDIS (Lév.) Diet. & Ellis, on Oxalis divergens, Alta Verapaz: S 71562; Chimaltenango: S 80003, 80076; Sacatepéquez: S 58013; on O. latifolia, Quezaltenango: S 87920; on O. sp., Chimaltenango: J 8, 94. The aecial stage, which occurs on Mahonia (Berberis), has not been found in Guatemala. Known from the warmer regions of North and South America and in greenhouses as far north as Massachusetts.
- PUCCINIA PALLESCENS see ANGIOPSCRA PALLESCENS.
- PUCCINIA PALLIDISSIMA Speg., on Stachys agraria, Chimaltenango: S 80070; on S. lindenii, Quezaltenango: H 805. Infrequent but known to occur from Texas to Chile and Argentina. The species is microcyclic.
- PUCCINIA PALLOR Arth. & Holw., on Bomarea acutifolia, Sacatepéquez: H 84, 562 (type), K 4611, 5413; on B. caldasii, Sacatepéquez: J 198, 598, S 65140; San Marcos: S 68659. Known otherwise only from Costa Rica and Bolivia.
- PUCCINIA PARILIS Arth., on Hyptis stellulata, Santa Rosa: H 848. Described and otherwise known from Mexico.



- PUCCINIA PASPALICOLA Arth.: Specimens distributed under Angiopsora compressa, P. dolosa and P. substriata. For a review of this group see Cummins (19).
- PUCCINIA PAULENSIS Rangel, on Cansicium annuum, Sacatepéquez: K 7104, 7438. These collections were reported by Davidson (21). Known also from South America. The species does not form uredia. For a description see Rangel (42).
- PUCCINIA PAUPERCULA Arth., on Pseudelephantopus spicatus, Jutiapa: S 75179; Suchitepéquez: H 510, 530. The species is micro-cyclic. Occurs from Mexico to Panama.
- PUCCINIA PLUCHEAE (Syd.) Arth., on Pluchea odorata, Guatemala: K 5388. Known from Florida, the West Indies, Guatemala, and South America.
- PUCCINIA POAE-SUDETICAE (Westend.) Jørstad, on Poa annua, Chimaltenango: S 80207; Guatemala: H 36; Quezaltenango: S 84598. This species has usually been recorded in American literature as P. epiphylla (P. poarum), an European species. The aecial stage is not known. Widely distributed.
- PUCCINIA POIKILOSPORA Cum., on Smilax jalapensis, Quezaltenango: S 85509; on S. spinosa, Jutiapa: J 1425 (type). Known only from Guatemala. For a description and for a photograph of teliospores of the type see Cummins (12).
- PUCCINIA POLYGONI-AMPHIBII Pers., on Polygonum meisnerianum, Baja Verapaz: S 90963; on P. punctatum, Baja Verapaz: S 69595, 91157; Guatemala: K 5392; Retalhuleu: S 87511; on P. sp., Huehuetenango: J 1706. The aecial stage occurs on Geranium in the more northern range of the species. Widely distributed.
- PUCCINIA POLYSORA Underw., on Euchlaena mexicana, Guatemala: K 5077; on Tripsacum dactyloides, Chimaltenango: S 80903; on Zea mays, Guatemala: K 5474. For distribution, discussion and a photograph of telia of the type see Cummins (17). The aecial stage is not known.
- PUCCINIA POROPHYLLI P. Henn., on Porophyllum ruderale, Jutiapa: S 75691; on P. sp., Zacapa: K 6116. Davidson (21) first reported this species for Guatemala, based on Kellerman's collection. He also states that what appears to be the same rust is present in the National Herbarium on a specimen of P. nummularius, collected by Blake at Gualan, Zacapa. Davidson also records the presence of the aecial stage but without a detailed description. Known also from Mexico and South America.
- PUCCINIA PRAEALTA Jacks. & Holw., on Vernonia triflosculosa, Retalhuleu: S 88731; Suchitepéquez: H 510 (type). Known also from Costa Rica and El Salvador.
- PUCCINIA PRIONOSCIADII Lindr., on Prionosciadeum cuneatum, Chimaltenango: J 233, 772, 772a, Sacatepéquez: S 59410; on P. thapsoides, Chimaltenango: S 80132. Known otherwise from Mexico.
- PUCCINIA PROBA Jacks. & Holw., on Wedelia filipes, Retalhuleu: S 88747; on Zexmenia elegans, Chiquimula: S 74750; Izabal: K 4383, 5332, 5352, 8003; Retalhuleu: H 531, 689, 698, 700, 714; on Z. frutescens, Alta Verapaz: von Tuerckheim; Chimaltenango: J 856; Izabal: Deam 302, H 601; Sacatepéquez: J 70;

- S 63354; Solola: H 109; on Z. salvinii, Chimaltenango: S 79950; Guatemala: H 847; Huehuetenango: S 82411; on Z sp., Chimaltenango: J 848. The species has teliospores somewhat variable in size; in Standley's no. 63354 they are frequently variably 3-celled. Known also from Costa Rica and Mexico.
- PUCCINIA PULSATILLAE Kalchbr., on Ranunculus hookeri, Chimaltenango: J 1464, 1762, S 57777, 60065. The four collections are all from the region of Las Calderas. First reported for Guatemala by Cummins (15) and not otherwise known to occur south of the United States although a widely distributed rust. The species is microcyclic.
- PUCCINIA PUNCTATA Link on Galium sp., Chimaltenango: J 734, K; Sacatepéquez: K 7196. Apparently this species has not been reported previously for Guatemala, although Kellerman's collections are old. Widely distributed.
- PUCCINIA PUNCTIFORMIS Diet. & Holw., on Rumex crispus, Solola: H 116, 676. Known also from Mexico, the United States, and Russia.
- PUCCINIA PURPUREA Cooke, on Sorghum halepense, Chimaltenango: J 1702; Guatemala: S 92862; on S. vulgare, Chimaltenango: S 80311, 80314; Jutiapa: S 85378; Sacatepéquez: K 6074; on Tripsacum latifolium, Guatemala: K. This common rust has apparently not been recorded previously for Guatemala or as on Tripsacum. The determination of the host of Kellerman's collection as T. latifolium was made by Mrs. Chase in 1917. Widely distributed.
- PUCCINIA RATA Jacks. & Holw., on Vernonia leiocarpa, Chimaltenango: S 79780; Guatemala: H 490 (type), 495a, 585, 860; Sacatepéquez: K 6300, S 63871. Known only from Guatemala.
- PUCCINIA REPENTINA Jacks. & Holw., on Arracacia bracteata, Santa Rosa: S 77904. Known otherwise only from the type collected in Bolivia. For the original description see Jackson (29); for additional notes and a photograph of teliospores see Cummins (20).
- PUCCINIA RUBIGO-VERA (DC.) Wint., on Trisetum deyeuxioides, Guatemala: H 35, 85; Sacatepéquez: K 5322; on Triticum aestivum, Chimaltenango: J; Quezaltenango: S 83448, 83758, 84207. The aecial stage has not been collected in Guatemala. World wide in distribution.
- PUCCINIA RUELLIAE (B. & Br.) Lagerh., on Blechnum brownei, Guatemala: K 5400; on Justicia inaequalis, Chimaltenango: J 1904; on J. sp., Retalhuleu: H 691. The morphological limits of this species are not well defined. The rust on Blechnum is frequently considered as a distinct species, P. blechi, and the collections on Justicia do not agree too well with collections on Ruellia.
- PUCCINIA SALVIICOLA Diet. & Holw., on Salvia occidentalis, Sacatepéquez: S 63043. Not reported previously for Guatemala but represented only by uredia and, therefore, the record should be accepted with reservation. Known also from Florida, Texas, Mexico, and possibly Colombia.



- PUCCINIA SANGUINOLENTA P. Henn., on Bunchosia sp., Dept. unknown: K. Not reported previously for Guatemala or as occurring on Bunchosia. A Mexican species, P. rubricans, is similar and perhaps synonymous. Known also from Brazil.
- PUCCINIA SCHISTOCARPHAE Jacks. & Holw., on Schistocarpa platyphylla, Guatemala: H 42 (type); Sacatepéquez: H 85, 571; on S. sp., Chimaltenango: S 80243; Quezaltenango: H 799, 834. Reported also from Colombia. The species is microcyclic.
- PUCCINIA SCLERIAE (Paz.) Arth., on Scleria setuloso-ciliata, Chiquimula: S 74715a; on S. sp., Dept. unknown: K. Not previously reported for Guatemala. The aecial stage occurs on Passiflora spp. Known from Central and South America, the West Indies, the Philippines, and New Guinea.
- PUCCINIA SEMOTA Jacks. & Holw., on Hymenostephium cordatum, Chimaltenango: S 80227, 80257; Solola: H 146 (type). Known only from the above collections. The species is microcyclic.
- PUCCINIA SENECTIONICOLA Arth., on Cacalia calotricha, Sacatepéquez: H 570; on C. sp., Guatemala: H 632, 845; Huehuetenango: H 771; Quezaltenango: H 794, 827, 835, 836; on Senecio acutangulus, Huehuetenango: S 81563, 82423, 82499; Quezaltenango: S 83304; on S. heterogamous, Quezaltenango: S 84247; on S. petasioides, Chimaltenango: J 74, 249, 372, 613, S 64398, 79784, 79954; Guatemala: K; Quezaltenango: House 5201, K 5418, S 65546, 83224, 83955, 83960, 84805, 85645, 86135, 87069; Sacatepéquez: S 58960, 59825; San Marcos: S 66132; Solola: K 5442; on S. platanifolia, Huehuetenango: S 82669; on S. sarmentosae, Sacatepéquez: J 1921; on S. warscewiczii, Quezaltenango: K 5445, S 84721; on S. sp., Guatemala: H 10, 47; Quezaltenango: H 93, 96A, 728, 781, 784. Common also in Mexico and reported for El Salvador.
- PUCCINIA SENILIS Arth., on Lippia myriocephala, Guatemala: K 5451 (type). Known only from this one meagre specimen. Future collections may prove the species to be a Prosnodium.
- PUCCINIA SEORSA Jacks. & Holw., on Piptocarpha chontalensis, Izabal: S 72528. Known otherwise from Brazil. For a description of the species see Jackson (30), for notes on the above aecial collection see Cummins (15).
- PUCCINIA SETARIAE Diet. & Holw., on Setaria sp., Chimaltenango: J 1699. Not previously reported for Guatemala. For a recent discussion of the species and a photograph of teliospores of the type see Cummins (19).
- PUCCINIA SHERARDIANA Körn., on Malvastrum coromandellianum, Guatemala: J 1688, S 80449; Jalapa: S 77179; Santa Rosa: S 77841. Not previously reported for Guatemala but common in the Americas. The species is microcyclic.
- PUCCINIA SOLIDIPIES Jacks. & Holw., on Eupatorium areolaria DC. (E. tubiflorum), Guatemala: H 18; Quezaltenango: H 793; Sacatepéquez: H 557 (type); Solola: K 5314. Known otherwise from three Mexican collections, none with telia.
- PUCCINIA SCRGI Schw., on Euchlaena mexicana, Chimaltenango: J 1905;

- on Zea mays, Chimaltenango: J 1968. See also Angiopsora zeae and Puccinia polysora which have, at times, been confused with this species. For a photograph of teliospores of the type see Cummins (17).
- PUCCINIA SPEGAZZINIANA De T., on Eleutheranthera ruderalis, Santa Rosa: S 77789. This is the first North American collection and the first on this host. For notes and a photograph of teliospores see Cummins (20). Known otherwise from South America.
- PUCCINIA SPEGAZZINII De T., on Mikania cordifolia, Guatemala: H 496, 622, 843, K 5402; Huehuetenango: S 82998. Occurs from the southern United States southward into South America. The species is microcyclic.
- PUCCINIA SUBAQUILA Jacks. & Holw., on Wedelia acapulcensis, Jutiapa: S 75205. Recorded previously only from South America. Only uredia are present so that the determination can be only tentative. For a description see Jackson (30).
- PUCCINIA SUBDIGITATA Arth. & Holw., on Brachypodium mexicanum, Guatemala: H 23 (type). Recorded otherwise for Bolivia and Colombia. The aecial stage is not known.
- PUCCINIA SUBSTRIATA Ellis & Kellerm., on Solanum diversifolium, Izabal: S 24085; on S. hispidum, Chimaltenango: J 771, 1906; on S. ochraceo-ferrugineum, Alta Verapaz: S 91799; on S. torvum, Izabal: H C, K 4621; on Paspalum affine, Sacatepéquez: S 63781; on P. langei, Alta Verapaz: S 90063; on P. paniculatum, H 595; on Valota insularis, Guatemala: K 5368; Santa Rosa: H 857. Proof of the relationship of the aecial stage on Solanum and the telial stage on Paspalum was provided by Thomas' (46) cultures made in Puerto Rico. The species has been cited as P. tubulosa and P. paspalicola and has had various names listed in its synonymy. For a review of this and related species and for photographs of teliospores, including those of the type, see Cummins (19).
- PUCCINIA TAGETICOLA Diet. & Holw., on Tagetes tenuifolia, Chimaltenango: J 159, S 79723; Jalapa: S 76507, 77386. Apparently not previously recorded for Guatemala. Known from Mexico, Costa Rica, the West Indies, and South America.
- PUCCINIA TETRAMERII Seym., on Tetramerium hispidum, Guatemala: S 89418. This is the first record of the species south of Mexico. Occurs northward to Arizona.
- PUCCINIA TITHONIAE Diet. & Holw., on Tithonia diversifolia, Guatemala: H 60, 65; Retalhuleu: H 701; on T. longeradiata, Jalapa: S 77226; Quezaltenango: S 87096; on T. rotundifolia, Alta Verapaz: S 69445, 69555; Chimaltenango: S 64329; Huehuetenango: S 82987; Jalapa: S 76505; Retalhuleu: H 696, 715; Suchitepéquez: H 514, 526; Santa Rosa: S 77692, 79407; on T. scaberrima, Quezaltenango: H 729; on T. tubaeformis, Guatemala: H 606, K 4328, 5425; Sacatepéquez: H 70. Known also from Costa Rica and Mexico.
- PUCCINIA TOLIMENSIS Mayor, on Eupatorium pansamalensis, Quezaltenango: H 802; on E. pycnocephaloides, Quezaltenango: S 84325a; on



E. pycnocephalum, Quezaltenango: S 85119; on E. sp., Guatemala: H 22; Quezaltenango: H 806. Known also from New York, Colombia, Bolivia, and Ecuador. The species is microcyclic.

PUCCINIA TRINIOCHLOAE see UREDO TRINIOCHLOAE.

PUCCINIA TRIXITIS (Kern & Kellerm.) Arth., on Trixis frutescens, Quezaltenango: H 725; Sacatepéquez: H 71, 531; Solola: H 108, K 5432 (type); on T. radialis, Quezaltenango: S 83228, 85786; Sacatepéquez: S 64272. Known only from Guatemala.

PUCCINIA URBANIANA P. Henn., on Cornutia grandifolia. Chiquimula: Standley 74719; Quezaltenango: H 822; Santa Rosa: S 77997; on Stachytarpheta frantzii, Jutiapa: S 74934, 75483, 78481; Santa Rosa: S 77688, 78831, 79258; on S. jamaicensis, Alta Verapaz: von Tuerckheim 1027, 7934. The species is microcyclic. Occurs from Florida into South America.

PUCCINIA VARIA (Diet.) Arth., on Jacobina sp. or Ruellia sp., Solola: H 160; on undet. Acanthaceae: K 5347. The original collection (Uredo varia Diet.) was made in Brazil. Both Guatemalan specimens have telia and are the only telial collections. There is, in the Arthur Herbarium, also a collection on Aphelandra sinclairiana? from Costa Rica.

PUCCINIA VELATA (E. & E.) Arth., on Euphorbia ephedromorpha, Jalapa: S 76466, 77147; on E. graminea, Chimaltenango: J 1967, S 80281. The species was recorded for Guatemala on Aklema (Euphorbia) scotana in the North American Flora but the host is E. cotinifolia and the rust (Kellerman 5433) P. euphorbiae var. longipes. Recorded also from Mexico, the West Indies, and Hawaii.

PUCCINIA VERGRANDIS Arth. & Holw., on Saurauia pauciserrata, Quezaltenango: H 320 (type). Known only from the type.

PUCCINIA VIOLAE (Schum.) DC., on Viola nannei, Sacatepéquez: H 566, 656, S 65116; on V. pringlei, Sacatepéquez: J 196. The above collections are all from Volcán de Agua. Widely distributed.

PUCCINIA WATTIANA Barcl., on Clematis dioica, Solola: K 5428. This microcyclic species has been reported previously only from the Orient. The specimen was collected by Kellerman on Volcán Atitlan, Feb. 16, 1906 and was found in a box of unidentified material in the Arthur Herbarium. The host was recently identified by Standley.

PUCCINIA ZEXMENIAE Diet. & Holw., on Zexmenia frutescens (Z. costaricensis), Guatemala: K 5452. Known also from Mexico and El Salvador.

PUCCINIASTRUM AGRIMONIAE (Schw.) Tranz., on Agrimonia macrocarpa, Chimaltenango: J 1899. Not previously recorded for Guatemala but the species is widely distributed. The aecial stage is not known but the aecial host will undoubtedly be Abies, Picea, or Tsuga.

PUCCINIASTRUM FUCHSIAE (Arth. & Holw.) Hirats., on Fuchsia splendens, Sacatepéquez: H 563 (type); on Lopezia hirsuta, Sacatepéquez: H 649. Neither the aecial stage nor the telia are known for this species. Reported also from Costa Rica and on greenhouse plants in Ohio.

- PUCCINIASTRUM MYRTILLI (Schum.) Arth., on Pernetia ciliata, Chimaltenango: J 518. Not previously recorded for Guatemala. The species is widely distributed. The aecial stage occurs on Tsuga in more northern regions.
- PUCCINIASTRUM SPARSUM (Wint.) Fischer, on Arbutus xalapensis, Chimaltenango: J; on A. sp., Quezaltenango: H 121. The aecial stage occurs on Picea but has not been collected in America. Widely distributed.
- PUCCINICOLA see UROMYCES.
- PUCCINIOSIRA BRICKELLIAE Diet. & Holw., on Brickellia adenocarpa, Chimaltenango: J 743, 849, 871, 879, S 79769, 79955; Guatemala: H 466, K 5333, 5468; Huehuetenango: H 755; Quezaltenango: H 92, 783, S 83929; El Quiché: J 1451; Sacatepéquez: S 63849; Solola: H 151; on B. cavanillesii, Quezaltenango: K 5448. Known also from El Salvador and Mexico.
- PUCCINIOSIRA EUPATORII Lagerh., on Eupatorium sp., Santa Rosa: S 60457. Guatemalan collections first reported as this species by Arthur (2) were later (5) transferred to Baeodromus eupatorii and P. eupatorii was cited, incorrectly, as a synonym of B. eupatorii. For a recent redescription of the species see Cummins (15). Known otherwise from South America.
- PUCCINIOSIRA PALLIDULA (Speg.) Lagerh., on Heliocarpus sp.: Guatemala: J 1689; on Triumfetta dumetorum, Chimaltenango: S 80015; Jalapa: S 76711; Jutiapa: S 75239, 75707; Quezaltenango: S 84855; Santa Rosa: S 78091; on T. lappula, Chimaltenango: J 131; Santa Rosa: S 79260; on T. semitriloba, Chiquimula: S 74707; Jutiapa: S 75007; Suchitepéquez: H 509; on T. sp., Guatemala: K 4608; Sacatepéquez: J 872, 877. Known from Mexico, the West Indies, and Central and South America.
- PYROLA SECUNDA var. ELATIOR Lange: Chrysomyxa pyrolae.
- QUAMOCLIT COCCINEA (L.) Moench: Coleosporium ipomoeae.
- QUERCUS CORRUGATA Hook., TOMENTOSA Willd.: Cronartium quercuum.
- RANNUNCULUS HOOKERI Schl.: Puccinia pulsatillae.
- RAVENELIA ACACIAE-PENNATULAE Diet., on Acacia pennatula, Jalapa: K 7898; Solola: H 162. Known also from Mexico.
- RAVENELIA ANTIGUANA Cumm., on Cassia biflora, Sacatepéquez: S 63356 (type). Known only from the type. For a description of the species and for a photograph of teliospore-heads see Cummins (15).
- RAVENELIA APPENDICULATA Lagerh. & Diet., on Phyllanthus conami (acuminatus) Retalhuleu: H 699; on P. sp., Guatemala: H 616; Solola: H 127, 671. Reported also from Mexico and South America.
- RAVENELIA BIZONATA Arth. & Holw., on Calliandra houstoniana, Guatemala: H 584 (type); on C. sp., Huehuetenango: H 762. Known only from Guatemala.
- RAVENELIA DISTANS Arth. & Holw., on undet. Mimosaceae, Retalhuleu: H 535 (type). Known only from the type.
- RAVENELIA ECTYPA Arth. & Holw., on Calliandra chapaderoana, Jalapa: S 77381; on C. gracilis, Guatemala: H 633; on C. sp., Guatemala: H 204. Originally described from Costa Rica and known also from Bolivia.



- RAVENELIA ENTADAE Lagerh. & Diet., on Entada sp., Suchitepéquez: H 517. Recorded also for Panama.
- RAVENELIA HUMPHREYANA P. Henn., on Caesalpinia pulcherrima, Jalapa: K 7668; Santa Rosa: K 7734; Zacapa: K 5427, S 74784. Known also from Costa Rica, Mexico, the West Indies and Florida.
- RAVENELIA IGUALICA Arth., on Acacia angulosa, Huehuetenango: S 81922; on A. filicioides, Quezaltenango: H 97; Solola: H 119; on A. sp., Santa Rosa: S 77983. Known also from Mexico and Texas.
- RAVENELIA INCONSPICUA Arth., on Caesalpinia exostemma, Guatemala: H 476. Known also from El Salvador and Mexico.
- RAVENELIA INDICOFERAE Tranz., on Indigofera mucronata, Solola: H 122; on I. suffruticosa, Guatemala: H 637; on I. sp., Sacatepéquez: H 640; Solola: H 667. Known also from Arizona, Mexico, the West Indies, and South America.
- RAVENELIA INGAE see BITZER INGAE, UREDO INGAE.
- RAVENELIA INQUIRENDA Arth. & Holw., on Acacia bursaria, Guatemala: H 196 (type). Known only from the type.
- RAVENELIA LEUCANAE-MICROPHYLLI Diet., on Acacia angustissima, Guatemala: H 9; Solola: H 138, 674. Reported also from Mexico and Brazil.
- RAVENELIA LONCHOCARPI Lagerh. & Diet., on Lonchocarpus sp., Suchitepéquez: H 511, 522. Reported also from the West Indies, El Salvador, and Brazil.
- RAVENELIA MAINSIANA Arth. & Holw., on Mimosa albida, Guatemala: H 13 (type). Recorded otherwise for El Salvador.
- RAVENELIA MERA Cumms., on Lonchocarpus michelianus, Jutiapa: S 75109 (type); on L. rugosus, Retalhuleu: H 706. Holway's collection was reported by Arthur (2) as R. similis and the host as Brongniartia. The host was corrected by Standley in 1939. For a description see Cummins (20). Known only from Guatemala.
- RAVENELIA MIMOSAE-ALBIDAE Diet., on Mimosa albida (M. floribunda), Baja Verapaz: K; Chimaltenango: J 161, 778; Jalapa: K; Jutiapa: S 74994; Sacatepéquez: K 5360, S 60302; Solola: H 137. Known also from Costa Rica, Mexico, and South America.
- RAVENELIA SILIQUAE Long, on Vachellia farnesiana, Guatemala: H 199; El Quiché: J 1449; Santa Rosa: H 850. Known also from Texas, Mexico, Cuba, Puerto Rico, and Hawaii.
- RAVENELIA SIMILIS see R. MERA.
- RAVENELIA SOLOLENSIS Arth. & Holw., on Lysiloma acapulcensis, Solola: H 147 (type). Known only from the type.
- RAVENELIA SPINULOSA Diet. & Holw., on Cassia biflora, Guatemala: H 867, K; Jalapa: H 209; Retalhuleu: S 88714; Santa Rosa: S 77915, 78552; Solola: H 134, 182; Zacapa: K 5441; on C. nicaraguensis, Chiquimula: S 74728; El Quiché: J 1447; on C. sp., Guatemala: H 44. Known also from the West Indies, Mexico, and Venezuela.
- RONDELETIA CORDATA Benth.: Uredo rondeletiae.
- ROSA sp.: Phragmidium disciflorum.
- RUBUS ADENOTRICHUS Schl.: Mainsia rubi.
- RUBUS AMPLIOR Rydb.: Kuehneola arthuri, Mainsia rubi.
- RUBUS CORIIFOLIUS Liebm.: Mainsia rubi.

- RUBUS ERIOCARPUS Liebm.: Mainsia epiphylla, M. rubi.  
 RUBUS GLAUCUS Benth.: Mainsia rubi.  
 RUBUS IRASUENSIS Liebm.: Mainsia holwayi, M. rubi, M. standleyi.  
 RUBUS LAXUS Rydb., MISER Liebm., POLIOPHYLLUS Focke, PRINGLEI Rydb.:  
Mainsia rubi.  
 RUBUS SCHIEDEANUS Steud.: Kuehneola arthuri.  
 RUBUS TRILOBUS Ser.: Phragmidium occidentale.  
 RUBUS TUECKHEIMII Rydb.: Kuehneola guatemalensis, Mainsia rubi.  
 RUBUS sp.: Kuehneola arthuri, K. loeseneriana, Mainsia pittieriana,  
M. rubi.  
 RUELLIA sp.: Puccinia varia.  
 RUMEX CRISPUS L.: Puccinia punctiformis.  
 RYNCHOSPORA POLYPHYLLA Vahl: Puccinia angustata var. angustatoides.  
 RYNCHOSPORA ROBUSTA (Kunth) Boeckl.: Puccinia cladii.  
 SALIX BICPLANDIANA H.B.K.: Melampsora ribesii-purpureae.  
 SALIX CHILENSIS Mol., TAXIFOLIA H.B.K.: Melampsora abietis-capraearum.  
 SALICIA SCANDENS (L.) DC.: Uromyces saliciae.  
 SALICIA ALBIFLORA M. & G.: Puccinia degener.  
 SALICIA AMARISSIMA Ort.: Puccinia farinacea.  
 SALICIA CINNABARINA M. & G.: Puccinia delicatula, P. infrequens, P. niveoides.  
 SALICIA COMPACTA Kuntze: Puccinia mitrata.  
 SALICIA ELEGANS Vahl: Puccinia delicatula, P. farinacea.  
 SALICIA GRACILIS Benth.: Puccinia cuilapensis.  
 SALICIA HISPANICA L.: Puccinia mitrata.  
 SALICIA HOLWAYI Standl.: Puccinia delicatula, P. farinacea.  
 SALICIA INVOLUCRATA Cav.: Puccinia filiola.  
 SALICIA KELLERMANI D. Sm., LAVANDULOIDES H.B.K., LINDENII Benth.:  
Puccinia farinacea.  
 SALICIA MOCINCI Benth.: Puccinia cuilapensis.  
 SALICIA MYRIANTHA Epling: Puccinia degener.  
 SALICIA NEPETOIDES H.B.K.: Puccinia farinacea.  
 SALICIA NERVATA M. & G.: Puccinia filiola.  
 SALICIA OCCIDENTALIS Sw.: Puccinia imoedita, P. salviicola.  
 SALICIA PATENS Cav.: Puccinia farinacea.  
 SALICIA POLYSTACHYA Ort.: Puccinia mitrata.  
 SALICIA PULCHELLA DC.: Puccinia delicatula, P. filiola.  
 SALICIA PURPUREA Cav.: Puccinia mitrata.  
 SALICIA RIPARIA Kunth: Puccinia farinacea.  
 SALICIA TILIAEFOLIA Vahl: Puccinia imoedita.  
 SALICIA URICA Epling: Puccinia infrequens.  
 SAURAUIA CONZATTII Busc., COSTARICENSIS D. Sm.: Puccinia hiascens.  
 SAURAUIA PAUCISERRATA Hemsl.: Puccinia hiascens, P. vergrandis.  
 SAURAUIA SMITHIANA Busc.: Puccinia hiascens.  
 SCHISTOCARPHA PLATYPHYLLA Greenm.: Puccinia schistocarphae.  
 SCIRPUS AMERICANUS Pers.: Puccinia obtectella.  
 SCLERIA BRACTEATA Cay.: Uromyces scleriae.  
 SCLERIA SETULOSO-CILIATA Boeckl.: Puccinia scleriae.  
 SENECEO ACUTANGULUS Hemsl.: Puccinia senecionicola, Uromyces senecionicola.



- SENECIO HETEROGAMUS Hemsl., PETASIOIDES Greenm., PLATANIFOLIA Benth.,  
SANTAROSAE Greenm.: Puccinia senecionicola.
- SENECIO WARSCEWICZII A. Br. & Bouché: Baeodromus holwayi, Puccinia senecionicola.
- SENETES see ZEUGITES.
- SERJANIA ATROLINEATA Sauv. & Wright, CARACASANA (Jacq.) Willd.,  
RACEMOSA Schum.: Puccinia arechavaletae.
- SETARIA sp.: Puccinia setariae.
- SIDA CILIARIS L., CORDIFOLIA L.: Puccinia heterospora.
- SIDA SPINOSA L.: Puccinia malvacearum.
- SINSIA FOETIDA (Cav.) Blake, HOLWAYI Blake, LAGASCAEFORMIS DC.,  
POLYCEPHALA Benth., SERICEA (Hemsl.) Blake: Puccinia enceliae.
- SKIERKA HOLWAYI Arth., on Thouinidium decandrum, Guatemala: H 475,  
K; Retalhuleu: S 88415; on T. sp., Santa Rosa: H 849 (type).  
Known also from El Salvador, Honduras, and Mexico. For a recent  
review, with illustrations, of the genus Skierka see Mains (40).
- SMILAX JALAPENSIS Schl.: Puccinia poikilospora.
- SMILAX SPINOSA Mill.: Puccinia poikilospora, Sphenospora yurima-  
guasensis.
- SOLANUM APPENDICULATUM Dunal: Uromyces solani.
- SOLANUM DIVERSIFOLIUM Schl., HISPIDUM Pers.: Puccinia substriata.
- SOLANUM NUDUM H.B.K.: Uromyces solani.
- SOLANUM OCHRACEO-FERRUGINEUM (Dunal) Fernald: Puccinia substriata.
- SOLANUM SALVIFOLIUM Lam.: Puccinia incondita.
- SOLANUM TORVUM Sw.: Puccinia substriata.
- SORGHUM HALEPENSE Pers., VULGARE Pers.: Puccinia purpurea.
- SPERMATOCOCCE PCDOCEPHALA DC.: Puccinia lateritia.
- SPHAEROPHRADIUM FIMBRIATUM Mains, on Dalbergia glabra, El Petén:  
Bartlett 12429A (type). Recorded also for Nicaragua. For a  
description of the species and for a photograph of teliospores  
see Mains (36).
- SPHENOSPORA YURIMAGUASENSIS (P. Henn.) Jacks., on Smilax spinosa,  
Santa Rosa: S 78107; on S. sp., Izabal: H 859, K 7111;  
Retalhuleu: H 718 (type of Sphenospora smilacina Syd.) If  
uredial names are not to be considered as valid in determining  
priority then S. smilacina Syd. would be the correct binomial.  
Known also from Costa Rica, Trinidad, and South America.
- SPIGELIA HUMBOELTIANA C. & S.: Coleosporium spigeliae.
- SPIRECHINA see MAINSIA and KUEHNEOLA.
- STACHYS AGRARIA C. & S., LINDENII Benth.: Puccinia pallidissima.
- STACHYTARPHETA FRANTZII Polak., JAMAICENSIS (L.) Vahl: Puccinia urbaniana.
- STELIS sp.: Uredo sp.
- STELLARIA CVATA Willd.: Puccinia detonsa.
- STEVIA ELATIOR H.B.K., LUCIDA Lag., OVATA Willd., POLYCEPHALA Bertol.,  
RHOMBIFOLIA H.B.K., SUBPUBESCENS Lag.: Coleosporium steviae.
- STIGMAPHYLLON sp.: Puccinia circinata.
- STRUTHANTHUS DENSIFLORUS (Benth.) Mart., QUERCICOLA (C. & S.) Blume:  
Uromyces socius.
- SYNEDRELLA NODIFLORA (L.) Gaertn.: Puccinia melampodii.

- TAGETES TENUIFOLIA Cav.: Puccinia tageticola.  
 TALINUM TRIANGULARE (Jacq.) Willd.: Aecidium talini.  
 TECOMA MOLLIS H.B.K.: Prospodium appendiculatum.  
 TECOMA STANS (L.) Juss.: Prospodium appendiculatum, P. transformans.  
 TELEUTCSPORA see UROMYCES.  
 TETRAMERIUM HISPIDUM Nees: Puccinia tetramerii.  
 THOUINIDIUM DECANDRUM (H.B.K.) Radlk.: Skierka holwayi.  
 TITHONIA DIVERSIFOLIA (Hemsl.) Gray, LONGERADIATA (Bertol.) Blake,  
 ROTUNDIFOLIA (Mill.) Blake, SCABERRIMA Benth., TUBAEFORMIS  
 (Jacq.) Cass.: Puccinia tithoniae.  
 TOURNEFORTIA HIRSISSIMA L., : PETIOLARIS DC.: Aecidium  
tournefortiae.  
 TRADESCANTIA CUMANENSIS Kunth: Uromyces commelinae.  
 TRANZSCHELIA PRUNI-SPINOSAE (Pers.) Diet., on Prunus capuli,  
 Chimaltenango: S 80321, 80805: Quezaltenango: S 83479; on  
P. persica, Chimaltenango: J 116, S 80808; Sacatepéquez:  
 J 84, K 5358; on P. serotina, Guatemala: H 28; on P. sp.,  
 Chimaltenango: S 80807; Guatemala: K 4387. The aecial stage  
 on Ranunculaceae is not known to occur in Guatemala. Widely  
 distributed.  
 TRICHOLAENA ROSEA Nees: Puccinia levis.  
 TRIFOLIUM AMABILE H.B.K.: Uromyces trifolii.  
 TRINIOCHLOA STIPOIDES (H.B.K.) Hitchc.: Uredo triniochloae.  
 TRIPSACUM DACTYLOIDES L.: Puccinia polysora.  
 TRIPSACUM LATIFOLIUM Hitchc.: Angiopsora pallescens, Puccinia purpurea.  
 TRIPSACUM LAXUM Nash: Angiopsora pallescens.  
 TRISSETUM DEYEUXIOIDES (H.B.K.) Kunth: Puccinia rubigo-vera.  
 TRISMERIA TRIFOLIATA (L.) Diels: Desmella superficialis.  
 TRITICUM AESTIVUM L.: Puccinia graminis, P. rubigo-vera.  
 TRIUMFETTA DUMETORUM Schl., LAPPULA L., SEMITRILOBA Jacq.:  
Pucciniosira pallidula.  
 TRIXIS FRUTESCENS P. Br., RADIALIS (L.) Kuntze: Puccinia trixitis.  
 UREDINOPSIS n. sp. inedit., on Polypodium plesiosorum, Chimaltenango:  
 J. This species has also been intercepted in Customs as from  
 Mexico. It will be described by Faull.  
 UREDINOPSIS INVESTITA Faull, on Adiantum andicola, Chimaltenango:  
 12983 (type). Known only from the type. For a description and  
 illustrations see Faull's (22) recent monograph of the genus  
Uredinopsis.  
 UREDINOPSIS MACROSPERMA (Cooke) Magn. on Pteridium aquilinum, Alta  
 Verapaz: Faull: Chimaltenango: J 712, 773, S 79980, Faull;  
 El Quiché: J 1453; Sacatepéquez: S 63742. Pteridium aquilinum  
 is used here in the broad sense to include varieties and marginal  
 species as was done by Faull (22). Most Guatemalan specimens  
 have been identified as P. caudatum. Faull also lists P. feei  
 and Standley's no. 79980 bears the name P. aquilinum var. The  
 aecial stage occurs on species of Abies but is not known from  
 Guatemala, or indeed, from most of the species' range, which is  
 practically world wide.  
 UREDO ANACARDII Mains on Anacardium occidentale, El Petén: Bartlett  
 12752 (type). Known only from the type. For a description see  
 Mains (36).



- UREDO ANTIGUENSIS Cumml., on Acalypha guatemalensis, Sacatepéquez: S 64281 (type). Known only from the type. For a description see Cummins (15).
- UREDO BEHNICKIANA P. Henn., on Oncidium cavendishianum. Recorded in the N. Am. Flora as introduced into England on plants from Guatemala.
- UREDO COLUBRINAE Cumml., on Colubrina ferruginosa, Quezaltenango: S 87894 (type). Known only from the type. For a description see Cummins (20).
- UREDO ERYTHRINAE P. Henn., on Erythrina berteriana, Chimaltenango: S 80151; Retalhuleu: S 88716; Quezaltenango: S 83940. Otherwise known in the Americas only from Ecuador.
- UREDO FICINA Juel., on Ficus aurea, Zacapa: K 5456; on F. involuta, Santa Rosa: S 79545; on F. padifolia, Retalhuleu: H 707; on F. sp., Retalhuleu: H 536; Suchitepéquez: H 527. This rust has commonly been considered to be synonymous with Cerotelium fici but because of distinctive morphological features should be treated separately.
- UREDO FUCHSIAE see PUCCINIASTRUM FUCHSIAE.
- UREDO IGNAVA Arth., on Arthrostylidium racemiflorum, Chimaltenango: J 1922; Guatemala: S 59210; on Bambusa vulgaris, El Petén: Lundell 2647A. First reported for Guatemala by Mains (36), based on Lundell's collection.
- UREDO INCOMPOSITA Kern., on Eleocharis sp., Guatemala: K 5365, 5399. This species was recorded, in the N. Am. Flora, under the genus Dicaeoma. Should it prove to be a Puccinia the above specific name cannot be employed, since P. incomposita has already been used by Jackson and Holway for a South American Baccharis rust.
- UREDO INGAE P. Henn., on Inga edulis, Guatemala: H 486; Retalhuleu: H 719. For a recent discussion of this species and Bitzea ingae, previously united as Ravenelia ingae, see Mains (38).
- UREDO MACHAERIICOLA Cumml., on Machaerium biovulatum, Retalhuleu: S 88557 (type). Known only from the type. For a description see Cummins (20).
- UREDO MUEHLENBECKIAE Jacks. & Holw., on Muehlenbeckia tamnifolia, Quezaltenango: S 83551, 84321. Known otherwise from Bolivia and Ecuador. For a description see Jackson (26).
- UREDO OBNIXA Cumml., on Cyperus melanostachyus, Huehuetenango: S 82692 (type). Known only from the type. For a description and discussion see Cummins (20).
- UREDO ONCIDII P. Henn., on Oncidium cavendishianum. Found in a California greenhouse on plants imported from Guatemala.
- UREDO PERIBEEUYENSIS Speg., on Polygala americana, Guatemala: H 682. Known also from Mexico and South America.
- UREDO QUICHENSIS Cumml., on Calliandra conzattiiana, El Quiché: S 81393 (type). Known only from the type. For a description see Cummins (20).
- UREDO RONDELETIAE Arth. & Holw., on Rondeletia cordata, Guatemala: H 842 (type). Known only from the type.

- UREDO RUBESCENS Arth., on Dorstenia contrajerva, Guatemala: H 634; Suchitepéquez: K 5374; Santa Rosa: S 78206; on D. houstoni, Retalhuleu: H 708; Suchitepéquez: H 520. Spores similar to those described by Kern, Ciferri and Thurston (34) for Uredo uncinata are present in some collections in intimate association with U. rubescens. The relationship is obscure.
- UREDO TRINIOCHLOAE Arth. & Holw., on Triniochloa stipoides, Guatemala: H 59 (type). Known also from Colombia.
- UREDO ZEUGITES Arth. & Holw., on Zeugites hartwegi, Guatemala: H 49 (type). Recorded also for Colombia.
- UREDO sp., on Stelis sp., Alta Verapaz: S 91371. The collection is parasitized and not determinable. No rust has been recorded on Stelis.
- UROMYCES AEGOPOGONIS see note under PUCCINIA AEGOPOGONIS.
- UROMYCES ANTIGUANUS Cumm., on Desmodium orbiculare, Chimaltenango: S 80043, 80878; Huehuetenango: H 761, 764, S 82021; Sacatepéquez: H 583, J 76, 779, S 58900 (type), 61735, 63074. Known only from Guatemala. For a description see Cummins (15).
- UROMYCES ASCLEPIADIS (Schw.) Cooke, on Asclepias curassavica, Guatemala: H 203; on A. guatemalensis, Guatemala: H 20. The species occurs in both North and South America.
- UROMYCES BIDENTICOLA (P. Henn.) Arth., on Bidens heterophylla, Quezaltenango: H 747; on B. holwayi, Quezaltenango: H 816; on B. leucantha, Dept. unknown: Bernoulli & Cario; on B. pilosa, Alta Verapaz: S 90159, 92219; Chimaltenango: J 133, 134, 374, S 79759; Guatemala: Heyde & Lux, H 27; Jalapa S 77535, 77542; Sacatepéquez: J 75, S 58554; Solola: K 5429; on B. pilosa var. calcicola f. dissecta, Chimaltenango: J; on B. squarrosa, Chimaltenango: S 79850, 79953, 80218; Guatemala: H 4; Huehuetenango: S 82387; Jutiapa: S 77649; Quezaltenango: H 786, S 84298, 87106; Solola: H 110; on B. triplinervia, Chimaltenango: S 80820; Huehuetenango: S 81904; Quezaltenango: S 83248; on B. triplinervia var. mollis, Totonicapán: S 84051; on B. sp., Guatemala: K 5351. This species is widely distributed in tropical regions.
- UROMYCES BIDENTIS Lagerh., on Bidens pilosa, Sacatepéquez: S 58043; on B. riparia, Sacatepéquez: J 386. Not previously recorded for Guatemala. Less frequent than P. bidenticola from which it differs in being microcyclic.
- UROMYCES BONARIENSIS Speg., on Gomphrena tuerckheimii, Alta Verapaz: S 90193; Jutiapa: S 78482. Not previously reported for Guatemala and recorded for North America only from Nicaragua. Only uredia are present in North American collections.
- UROMYCES BOUVARDIAE Syd., on Bouvardia leiantha, Guatemala: H 605; Santa Rosa: Heyde & Lux (type). Known also from Mexico. A variable species, especially as regards pedicels which are swollen in some collections and cylindric in others but basally rugose in all.
- UROMYCES CALPOGONII Cumm., on Calopogonium galactioides, Chimaltenango: J 165, S 79808 (type), 80947. Known only from Guatemala. For a description see Cummins (20).



- UROMYCES CELOSIAE Diet. & Holw., on Iresine calea, Guatemala:  
 K 4344, 5339, 5371, 5379, 5395; Sacatepéquez: H 76, S 64282;  
 Solola: H 128; on I. celosia, Chimaltenango: J 735;  
 Huehuetenango: S 82913; Jalapa: S 77543. --Known also from  
 Costa Rica, Mexico, the West Indies, and South America.
- UROMYCES CESTRI (Mont.) Lév., on Cestrum aurantiacum, Solola:  
 H 143; on C. guatemalense, Totonicapán: S 84133. Not un-  
 common in tropical regions of the Americas. Uredia are not  
 formed.
- UROMYCES CLIGNYI Pat. & Har., on Andropogon hirtiflorus, Guatemala:  
 H 57; Solola: H 114. Known also from Cuba, Mexico, and Africa.
- UROMYCES COLOGANIAE Arth., on Cologania glabrior, Guatemala: H 31,  
 609. Known also from Mexico and Costa Rica.
- UROMYCES COLUMBIANUS Mayor, on Melanthera aspera, Escuintla: H 507;  
 Retalhuleu: H 711; Suchitepéquez: H 512, K 4610; on M. hastata,  
 Izabal: H 602; Solola: H 672; on M. nivea, Chimaltenango:  
 J 847, 865, S 80013; Huehuetenango: S 82993; Jalapa: S 77540.  
 Difficult to distinguish, without telia, from Puccinia melantherae.  
 Known from Florida southward into South America.
- UROMYCES COMELINAE (Speg.) Cooke, on Tradescantia cumanensis,  
 Guatemala: H 683; Retalhuleu: H 710. Generally distributed  
 in the warmer regions of the world.
- UROMYCES CUCULLATUS Syd., on Baltimora recta, Jutiapa: S 75076;  
 Santa Rosa: S 24063, 77895; on Perymenium grande, Alta Verapaz:  
 S 69472; on P. purpusii, Quezaltenango: H 734; on P. stri-  
 gilloseum, Guatemala: H 679; Jalapa: K 7040; Sacatepéquez:  
 H 541, K 5326, S 63171, 63867; on Zexmenia elegans var. keller-  
 manii, Jutiapa: S 75006; on Z. scandens, Guatemala: H 43;  
 Solola: H 183, 668. Reported from Mexico to Panama and in Cuba.
- UROMYCES EPICAMPIS Diet. & Holw., on Epicampis macroura, Guatemala:  
 H 26. Known otherwise from only single collections in Arizona,  
 Ecuador, and Mexico.
- UROMYCES ERAGROSTIDIS Tracy, on Eragrostis limbata, Chimaltenango:  
 J 1700, S 79762; Sacatepéquez: H 651; Solola: H 167. Known  
 from North and South America and Africa.
- UROMYCES FABAE (Pers.) deB., on Vicia faba, Quezaltenango: H 796;  
 San Marcos: S 86476. Widely distributed.
- UROMYCES GEMMATUS B. & C., on Jacquemontia nodiflora, Jutiapa:  
 S 75124. Not recorded previously for Guatemala. Known also  
 from South America and the West Indies.
- UROMYCES GOUANIAE Kern, on Gouania domingensis, Guatemala: K 5391  
 (type). Known only from the type.
- UROMYCES GUATEMALENSIS Vesterg., on Eauhinia inermis, Escuintla:  
 H 194; on B. pauletia, Jutiapa: S 75203, 75224; on B. unguata,  
 Retalhuleu: S 88556; on B. sp., Retalhuleu: Bernoulli &  
 Cario (type). Known also from Costa Rica, El Salvador, and  
 Venezuela.
- UROMYCES HEDYSARI-PANICULATI (Schw.) Farl., on Desmodium angustifolium,  
 Guatemala: H 589; on D. intortum, Chimaltenango: S 79767; on  
D. scorpiurum, Suchitepéquez: H 528, Maxon & Hay 3450; on

- D. strobilaceum, Huehuetenango: S 82347; on D. tenuipes, Sacatepéquez: H 646; Solola: H 163; on D. sp., Guatemala: K 5323, Sacatepéquez: K 7196; Santa Rosa: S 77911. Common in the Americas.
- UROMYCES HELLERIANUS Arth., on Cayaponia racemosa, Guatemala: K 5436; on Melothria guadalupensis, Alta Verapaz: S 92272; on M. scabra, Guatemala: H 630; on Cucurbitaceae undet., Guatemala: H 483, 862. Known from the West Indies, Central America, and Ecuador.
- UROMYCES HYPERICI (Spreng.) Curt., on Hypericum pratense, Guatemala: H 25. Known from Canada to Chile.
- UROMYCES ICTERICUS Cumm., on Iresine celosia, Chimaltenango: S 80214; Quezaltenango: H 803 (type), S 85473; Solola: H 141. Known only from Guatemala. This species was reported by Arthur (2, 5) as U. iresines, a South American rust. For a description and illustration see Cummins (16). Uredia are not formed.
- UROMYCES ILLOTUS Arth. & Holw., on Mucuna andreana, Guatemala: H 487 (type). Known only from the type.
- UROMYCES INDIGIFERAE Diet. & Holw., on Indigofera mucronata, Izabal: S 24568; Zacapa: K 5444. Known from Florida and Texas to Panama and in Venezuela.
- UROMYCES IRESINES see UROMYCES ICTERICUS.
- UROMYCES JUNCII-EFFUSI Syd., on Juncus effusus, Alta Verapaz: S 92266, 92534. Not previously recorded for Guatemala.
- UROMYCES LEPTODERMIS Syd., on Panicum barbinode, Guatemala: H 12, K 5364; on P. maximum, Jalapa: S 77541; Sacatepéquez: S 64716. Thurston (47) reported notes concerning the characteristics of this species. For a recent description and discussion and for a photograph of teliospores see Cummins (19).
- UROMYCES MACULANS (Pat.) Arth., on Cestrum lanatum, Guatemala: H 489. An infrequent species recorded otherwise from Bolivia, Costa Rica, and El Salvador. Uredia are not formed.
- UROMYCES MEDICAGINIS Pass. see UROMYCES STRIATUS.
- UROMYCES MONTANAE Arth. & Holw., on Montanoa hibiscifolia, Chimaltenango: J 865a; Guatemala: K 5410; Retalhuleu: H 705; on M. pittieri, Guatemala: H 625; Sacatepéquez: H 77; Solola: H 176 (type); on M. pteripoda, Chimaltenango: J 1927a; on M. sp., Guatemala: K 5389. Recorded otherwise only from Costa Rica.
- UROMYCES MONTANUS Arth., on Lupinus flabellaris, Quezaltenango: Steyermark 34169; Sacatepéquez: J 193, K 7447, S 65219; on L. montanus, Sacatepéquez: H 576. Described and otherwise known from Mexico.
- UROMYCES MYRSINES Diet., on Ardisia paschalis, Jutiapa: J 1426. Not previously recorded for Guatemala. Known also from Costa Rica and South America. The species is microcyclic.
- UROMYCES OAXACANUS Diet. & Holw., on Jatropha urens, Escuintla: J 773; Guatemala: H 2; Chimaltenango: J 1446; on J. tubulosa, Sacatepéquez: S 63847, 80975. Known otherwise from Arizona, British Honduras, and Mexico.



UROMYCES PHASECLI (Pers.) Wint., on Phaseolus atropurpureus, Guatemala: H 202, K 5372; Jutiapa: S 75075; on P. lunatus, Solola: H 159; on P. macrolepis, Quezaltenango: S 83476; on P. vulgaris, Alta Verapaz: S 70971, 92179; Chimaltenango: S 79787; Jalapa: S 76497; on P. sp., Guatemala: Hitchcock, H 620; Huehuetenango: S 81310; Quezaltenango: H 105; Sacatepéquez: H 67; Santa Rosa: S 78910; Solola: H 117; Dept. unknown: Smyth. Widely distributed.

UROMYCES POLYMNIAE Diet. & Holw., on Polymnia maculata, Chimaltenango: S 80280; Guatemala: H 30, 62; Jalapa: K 7701; Quezaltenango: H 749; Retalhuleu: K 5447; Suchitepéquez: K 5305, 5387; Santa Rosa: S 78303; Solola: K 5384, 6310. Known also from Mexico and South America.

UROMYCES PRESSUS see MARAVALLIA PRESSA.

UROMYCES PROEMINENS (DC.) Pass., on Euphorbia adenoptera, Izabal: K 7036; on E. brasiliensis, Guatemala: K 5341; Retalhuleu: H 533; on E. graminea, Santa Rosa: Deam 6137; on E. hirta, Chimaltenango: S 79753; Guatemala: H 477, K 5454; Quezaltenango: S 85799; Sacatepéquez: K 5328; Solola: H 142; on E. lasiocarpa, Guatemala: J 1429, K 5404; Jutiapa: S 75373; on E. thymifolia, Escuintla: S 89401. Widely distributed.

UROMYCES PUNCTATUS Schroet., on Astragalus guatemalensis, Quezaltenango: H 736, S 86067. Widely distributed.

UROMYCES SALMEAE Arth. & Holw., on Salmea scandens, Solola: H 188 (type). Known also from the Dominican Republic and Puerto Rico.

UROMYCES SCLERIAE P. Henn., on Scleria bracteata, Alta Verapaz: S 89700. This is the first Central American collection. Known also from the West Indies and South America.

UROMYCES SENECTIONICOLA Arth., on Senecio acutangulus, Quezaltenango: S 84245. Not previously recorded for Guatemala. Known otherwise only from Mexico.

UROMYCES SOCIUS Arth. & Holw., on Struthanthus densiflorus, Huehuetenango: H 765; on S. quercicola (L. crassipes), Solola: H 169, 185; on S. sp., Sacatepéquez: H 539, 545 (type); Solola: H 665. Recorded only for Guatemala. For keys to the species of Uromyces on Loranthaceae see Cummins (11).

UROMYCES SOLANI Diet. & Holw., on Solanum appendiculatum, Chimaltenango: J 1911, S 80252; on S. nudum, Quezaltenango: H 815. Known also from Mexico and Colombia.

UROMYCES STRIATUS Schroet., on Medicago lupulina, Quezaltenango: S 66442; on M. sativa, Chimaltenango: S 79765; Sacatepéquez: J. Not previously reported for Guatemala. Widely distributed.

UROMYCES TRIFOLIUM (Hedw. f.) Lévl., on Trifolium amabile, Guatemala: H 48; on T. sp., Totonicapán: J 507. Widely distributed.

UROPYXIS DALEAE (Diet. & Holw.) Magn., on Parosela diffusa, Guatemala: H 638; on P. domingensis, Guatemala: H 681; on P. nutans, Guatemala: H 612; Huehuetenango: S 81208. Reported also for Mexico, El Salvador, Bolivia, and Venezuela.

UROPYXIS DIPHYSAE (Arth.) Curr., on Diphyssa floribunda, Huehuetenango: S 82872; on D. rhobinioides, Guatemala: H 8; Retalhuleu:

- H 716; Suchitepéquez: H 521; Solola: H 121a, 157; on D. sp., Escuintla: H 191, 195. Recorded otherwise from Costa Rica and Mexico. The species is microcyclic.
- UROPYXIS HOLWAYI Arth., on Eysenhardtia adenostylis, Solola: H 161, 666. Known otherwise from Arizona and Mexico. The species is microcyclic.
- UROPYXIS NISSOLIAE (Diet. & Holw.) Magn., on Nissolia fruticosa, Jutiapa: S 74895. Not previously reported for Guatemala. Known otherwise from El Salvador and Mexico.
- URVILLEA ULMACEA H.B.K.: Puccinia archavaletae.
- VACHELLIA FARNESIANA (L.) W. & A.: Ravenelia siliquae.
- VALERIANODES see STACHYTARPHETA.
- VALOTA INSULARIS (L.) Chase: Puccinia atra.
- VERBESINA AGRICOLARUM Standl. & Steyer., APLEURA Blake: Coleosporium viguierae.
- VERBESINA FRASERI Hemsl.: Coleosporium viguierae, Puccinia cognata.
- VERBESINA GIGANTEA Jacq., GUATEMALENSIS Rob. & Greenm.: Coleosporium viguierae.
- VERBESINA HOLWAYI Rob.: Coleosporium viguierae, Puccinia cognata.
- VERBESINA HYPOGLAUCA Liebm. MYRICOPHALA Sch. Bip.: Coleosporium viguierae.
- VERBESINA PERYMENICIDES Sch. Bip.: Coleosporium viguierae, Puccinia abrupta.
- VERBESINA PUNCTATA Rob. & Greenm.: Coleosporium viguierae, Puccinia abrupta, P. cognata.
- VERBESINA SCABRIUSCULA Blake: Coleosporium viguierae.
- VERBESINA STEYERMARKII Standl.: Puccinia irregularis.
- VERBESINA SUBLOBATA Benth.: Coleosporium viguierae, Puccinia cognata.
- VERBESINA TURBACENSIS H.B.K.: Coleosporium viguierae, Puccinia cognata, P. ferox.
- VERNONIA ASCHENBORNIANA Schauer: Puccinia inaequata.
- VERNONIA DEPPEANA Less.: Maravalia pressa, Puccinia discreta.
- VERNONIA HEYDEANA Coult.: Puccinia idonea.
- VERNONIA LEIOCARPA DC.: Puccinia notha, P. rata.
- VERNONIA PATENI H.B.K.: Puccinia inaequata.
- VERNONIA SCHEIDEANA Less.: Puccinia erratica.
- VERNONIA SHANNONI Coult., STANDLEYI Blake: Puccinia notha.
- VERNONIA TRIFLOSCULOSA H.B.K.: Puccinia idonea, P. praealta.
- VERNONIA sp.: Puccinia insulana.
- VIBURNUM DISCOLOR Benth.: Coleosporium viburni.
- VICIA FABA L.: Uromyces fabae.
- VIGNA REPENS (L.) Kuntze: Phakopsora vignae.
- VINCETOXICUM sp.: Puccinia obliqua.
- VIOLA NANKEI Polak., PRINGLEI Rose & House: Puccinia violae.
- VITIS TILIAEFOLIA H. & B., VINIFERA L.: Phakopsora vitis.
- WEDELIA ACAPULCENSIS H.B.K.: Puccinia inaudita, P. subaquila.
- WEDELIA FILIPES Hemsl.: Puccinia inaudita, P. proba.
- WISSADULA AMPLISSIMA (L.) Fr., PERIPLICIFOLIA (L.) Presl: Puccinia heterospora.
- XYLOPIA FRUTESCENS Aubl.: Dasyscypha gregaria.



- ZEA MAYS L.: Angiopsora zae, Puccinia polysora, P. sorghi.  
 ZEUGITES HARTWEGII Fourn.: Uredo zeugitis.  
 ZEXMENIA ELEGANS Sch. Bip.: Puccinia inaudita, P. proba.  
 ZEXMENIA ELEGANS var. KELLERMANII Greenm.: Uromyces cucullatus.  
 ZEXMENIA FRUTESCENS (Mill.) Blake: Puccinia proba, P. zexmeniae.  
 ZEXMENIA LEUCACTIS Blake, LONGIPES Benth.: Puccinia inaudita.  
 ZEXMENIA SALVINII Hemsl.: Puccinia proba.  
 ZEXMENIA SCANDENS Hemsl.: Uromyces cucullatus.

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